BERNINA 780

made to create BERNINA

Dear BERNINA Customer

Congratulations! You have decided on BERNINA and therefore on a product which will delight you for years. For more than 100 years our family company has attached greatest importance to satisfied customers. As for me, it is a matter of personal concern to offer you Swiss development and precision at the height of perfection, future-orientated sewing technology and a comprehensive customer service.

The BERNINA 7-series consists of three ultramodern machines, whose development not only focused the highest demands on technique and the ease of use but also considered the design of the product. After all we sell our products to creative people like you, who do not only appreciate high quality but also form and design.

Enjoy the creative sewing, embroidering and quilting on your new BERNINA 780 and keep informed about the various accessories at www.bernina.com.
On our homepage you will also find a lot of inspiring sewing instructions, to be downloaded for free.

Our highly trained BERNINA dealers will provide you with more information on service and maintenance offers.

I wish you lots of pleasure and many creative hours with your new BERNINA.

H.P. Ueltschi
Owner
BERNINA International AG
CH-8266 Steckborn
www.bernina.com

3nd Edition

SAFETY INSTRUCTIONS

IMPORTANT INFORMATION

When using an electrical appliance, basic safety precautions should always be followed, including the following:

Read all the instructions before using this sewing-/embroidery computer.

When the sewing-/embroidery computer is not in use, it should be disconnected from the electricity supply by removing the plug from the outlet.

⚠ DANGER!

To reduce the risk of electrical shock:

1. The sewing-/embroidery computer should never be left unattended when plugged in.
2. Always unplug this sewing-/embroidery computer from the electrical outlet immediately after using and before cleaning.
3. LED Radiation – Do not view directly with optical instruments. Class 1M LED product.

⚠ WARNING!

To reduce the risk of burns, fire, electric shock or injury to persons:

1. Use this sewing-/embroidery computer only for purposes as described in this manual. Use only attachments, accessories and parts recommended by the manufacturer.
2. Do not allow this sewing-/embroidery computer to be used as a toy. Close attention is necessary when this sewing-/embroidery computer is used by or near children and infirm persons. The sewing-/embroidery computer is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the sewing-/embroidery computer by a person responsible for their safety. To ensure children do not play with the sewing-/embroidery computer they must be supervised.
3. Never operate this sewing-/embroidery computer if:
   - it has a damaged cord or plug
   - it is not working properly
   - it has been dropped or damaged
   - it has fallen into water

   Return the sewing-/embroidery computer to your local authorized BERNINA dealer for examination or repair.
4. Never operate the sewing-/embroidery computer with any air openings blocked. Keep ventilation openings of the sewing-/embroidery computer free from the accumulation of lint, dust and loose cloth.
5. Keep fingers away from all moving parts. Special care is required around the sewing needle.
6. Never insert any objects into any openings on the sewing-/embroidery computer.
7. Do not use the sewing-/embroidery computer outdoors.
8. Do not operate the sewing-/embroidery computer where aerosol products (sprays) or oxygen are being used or where oxygen is being administered.
9. Do not pull or push the fabric while stitching. This may deflect the needle, causing it to break.
10. Do not use bent needles.
11. Always use the original BERNINA stitch plate. The wrong stitch plate can cause needle breakage.
12. To disconnect, turn power switch to «0» (off), then remove the plug from the outlet. Do not unplug by pulling the cord, instead grasp the plug to pull it from the outlet.
13. Turn power switch to «0» (off) when making any adjustments in the needle area, such as changing the needle or the presser foot, etc.
14. Always unplug the sewing-/embroidery computer from the electrical outlet when carrying out cleaning or maintenance work or any other user servicing adjustments mentioned in this manual.
15. This sewing-/embroidery computer is provided with double insulation (except USA and Canada). Use only identical replacement parts. See instructions for servicing of double-insulated products.

SERVICING DOUBLE-INSULATED PRODUCTS

In a double-insulated product two systems of insulation are provided instead of grounding. No grounding means is provided on a double-insulated product, nor should a means for grounding be added to the product. Servicing a double-insulated product requires extreme care and knowledge of the system and should be done only by qualified service personnel. Replacement parts for a double-insulated product must be identical to the original parts in the product. A double-insulated product is marked with the words: «DOUBLE INSULATION» or «DOUBLE INSULATED».

The symbol ⧈ may also be marked on the product.

DISCLAIMER

No liability will be assumed for any possible damage which arises from misuse of this sewing-/embroidery computer.
This sewing-/embroidery computer is intended for household use only.
This sewing-/embroidery computer meets the European Standard 2004/108/EC concerning the electromagnetic tolerance.

SAVE THESE INSTRUCTIONS!

Please find the latest version of your instruction manual at **www.bernina.com**

Environmental Protection

BERNINA is committed to the protection of the environment. We strive to minimize the environmental impact of our products by continuously improving product design and our technology of manufacturing.

When your sewing computer won't be used anymore, dispose this product in an environmentally responsible way according to the national directive. Do not throw away this product with your household waste. In case of doubt, please contact your BERNINA dealer.

If the sewing computer is stored in a cold room, it should be brought to a warm room about one hour before use.

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Key to Signs

DANGER!
Very important!
Risk of injury!

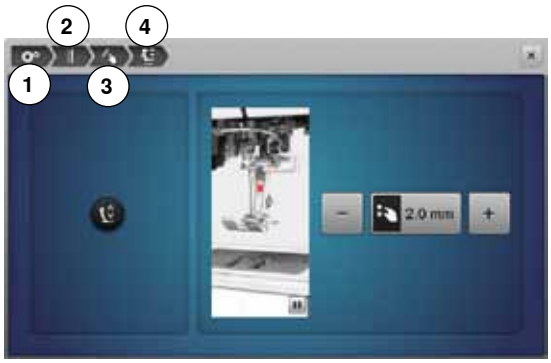
ATTENTION!
Very important!
Risk of damage!

Tips!

Glossary

BERNINA USB stick	Mobile storage medium
Balance	Correcting abnormalities in stitch formation due to the fabric
Fabric fold	Folded edge of material
BSR	BERNINA-Stitch-regulator. Quilting with consistent stitch length within a certain speed
clr	Clear. Deleting settings or data
Hook	«Catches» the needle-thread loop, forming the stitch together with the lower thread
LMS	Length Measuring System for buttonhole
Memory	Long Term Memory
Satin stitching	Dense Zig-zag
Bartack	Buttonhole-bead cross-connections

Breadcrumb navigation



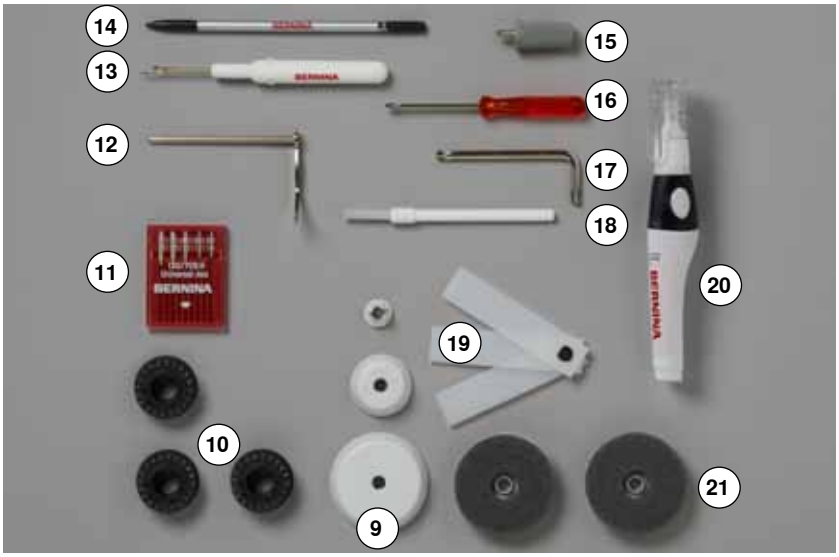
1 Setup program is selected
2 Sewing settings are selected
3 Programming «Function»-button/«Function»-icon is selected
4 Programming hovering position of the presser foot is selected
- having selected the corresponding icon (as for this example 1-3) the desired display opens

All rights reserved
For technical and product improvement reasons, the sewing computer's features, parts and accessory are subject to unannounced changes and alterations at any time. The accessory included can differ from country to country.

Accessory

Standard Accessories

1 Presser foot lifter
2 Foot control
3 Soft Cover with pocket
4 Accessory box
5 Power cable
6 Seam guide for slide-on table
7 Straight-/CutWork stitch plate
8 Slide-on table



9 3 spool discs
10 4 bobbins (one of them in the bobbin case)
11 Selection of needles
12 Seam guide, right
13 Seam ripper
14 Touchscreen pen
15 Screwdriver Torx, gray
16 Screwdriver, red
17 Angular Torx button
18 Lint brush
19 Height compensation tool
20 Lubricator
21 2 foam pads

Presser feet

1 No. 1C Reverse pattern foot
2 No. 1D Reverse pattern foot
3 No. 2A Overlock foot
4 No. 3A Automatic buttonhole foot with slide
5 No. 4D Zipper foot
6 No. 5 Blind stitch foot
7 No. 8D Jeans foot
8 No. 20C Open embroidery foot
9 No. 40C Sideways motion foot
10 No. 42 BSR foot

Visit **www.bernina.com** for more accessory information.

Accessory box free standing

- on the back of the box, pull both extensions out until they click into place

Storage example

Lay-out
The box is equipped as standard with one large **1** and one small **2** drawer as well as a compartment for bobbin holders **5** and presser feet **7**.

- to remove a bobbin, press the compartment holder **6** lightly
- buttonhole foot with slide No. 3A can be stored in the left compartment **4**
- store the needle package in the special compartment **3**

Bobbin

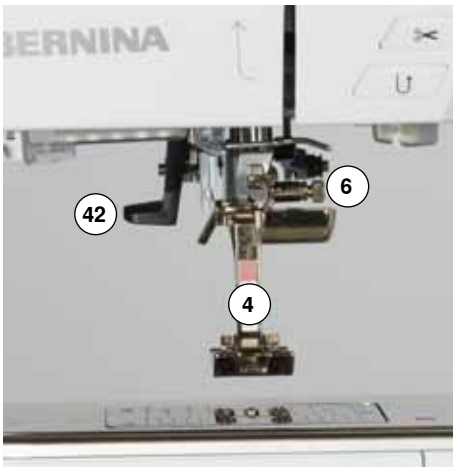
ATTENTION!
Treat the bobbins with care. Keep the white sensor surfaces free of scratches or stains to ensure correct.

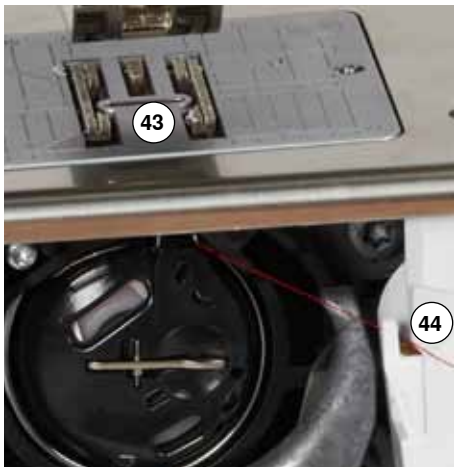
ATTENTION!
Put the bobbins into the appropriate case of the accessory box so that the silvery sensor surfaces are on the right side. Otherwise the bobbin can get jammed in the case, as the two bobbin surfaces are different in diameter.

Overview sewing computer

Front view

Detail view





1 Bobbin cover
2 Stitch plate
3 Special-accessories port
4 Presser foot
5 LED-Sewing light
6 Needle clamp
7 «Quick reverse»-button
8 «Automatic thread cutter»-button
9 «Presser foot up/down»-button
10 «Start/Stop»-button
11 Thread guide
12 Slide speed control
13 «Securing»-button
14 Programmable «Pattern end-/Securing»-button
15 «Pattern begin»-button
16 «Needle stop»-button down/up
17 Thread take-up cover
18 Thread take-up lever
19 Pre-tension stud
20 Carrying handle
21 Bobbin winder
22 Thread cutter on bobbin winder
23 Display
24 Stitch width knob
25 «Sewing support»-buttons
- «Home»-button
- «Setup»-button
- «Tutorial»-button
- «Creative Consultant»-button
- «Help»-button
- «eco»-button
- «clr»-button

26 Stitch length knob
27 «Needle position»-buttons
28 Free Hand System connection
29 Rear thread guide
30 Horizontal spool pin
31 Vertical spool pin
32 Eyelet thread guide
33 Handwheel
34 Power switch On «I»/ Off «0»
35 Power plug socket
36 Air vents
37 Magnetic holder for Touchscreen pen
38 USB-connection
39 PC-connection for embroidery software
40 Foot control socket
41 Feed dog drop
42 Needle threader
43 Feed dog
44 Lower thread cutter
45 Headframe fixing screw
46 Thread cutter on the head frame
47 Slide-on table socket
48 Darning hoop connection
49 Special-accessories port
50 BSR-connection
51 BERNINA Dual Feed

USA/Canada only: The sewing computer has a polarized plug (one blade wider than the other). To reduce the risk of electrical shock, this plug is intended to fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way!

Important Sewing information

Thread

Be sure to select the appropriate thread type and weight for the fabric. For a perfect sewing result, thread and fabric quality play an important role. It is recommended to use quality brands.

Cotton threads
- cotton threads have the advantage of being a natural fiber and therefore are especially suitable for sewing cotton fabrics
- if cotton thread is mercerized, it has a slight sheen that is not lost with washing

Polyester threads
- polyester threads have a high tensile strength and is particularly colorfast
- polyester threads are more flexible and are recommended where a strong and elastic seam is required

Rayon threads
- rayon threads are made of natural fibers and have a brilliant sheen
- rayon threads are suitable for decorative stitches and achieve a more beautiful effect

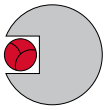
Needle, thread and fabric

ATTENTION!
Check the needle condition.
As a guide: Replace the needle before starting a new sewing project. A defective needle does not only damage the sewing project but also the sewing computer.

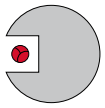
Care must be taken when choosing needle and thread.

The correct needle size depends on the selected thread and fabric. The fabric weight and type determine the thread weight, needle size and point form.

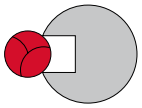
Needles, threads



Correct needle/Thread combination
To sew optimally, the thread should travel smoothly down the long groove on the front of the needle.



Too thin thread or too thick needle
The thread has too much clearance in the long groove. Skipped stitches and damage to the thread can occur.

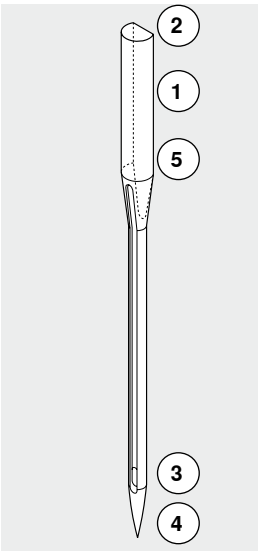


Too thick thread or too thin needle
The thread rubs on the edges of the long groove and can get jammed. This can result in thread breakage.

Guidelines

Material and thread	Needle size
Light weight materials:	
Fine thread (darning thread, embroidery thread)	70-75
Medium weight materials:	
Sewing thread	80-90
Heavy weight materials:	
Sewing thread (quilting thread, topstitching)	100, 110, 120

130/705 H-S/70



1	**130**	Shank length
2	**705**	Flat shank
3	**H**	Needle scarf
4	**S**	Needle point (here e.g. medium ball point)
5	**70**	Needle size (shank diameter)

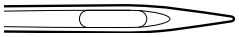
Overview needles

Universal
130/705 H/60-100

Normal point, slightly rounded

For nearly all natural and synthetic fabrics (woven and knitted)

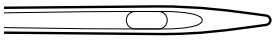
Metafil
130/705 H-MET/75-80 or H-SUK/90-100



Large eye

Sewing with metallic threads

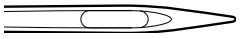
Jersey/Stretch
130/705 H-S, H-SES, H-SUK/70-90



Ball point

Jersey, knit and stretch material

Cordonnet (Topstitching)
130/705 H-N/80-100



Small ball point, long eye

Topstitching with thick thread

Leather
130/705 H-LL, H-LR/90-100

With cutting point

All types of leather, synthetic leather, plastic, sheeting

Wing needle (Hemstitch needle)
130/705 HO/100-120

Wide needle (wing)

Hemstitching

Jeans
130/705 H-J/80-110

Very fine sharp point

Heavy weight fabrics such as jeans, canvas, overalls

Double wing needle
130/705 H-ZWI-HO/100

For special effects with hemstitch embroidery

Microtex
130/705 H-M/60-90

Especially fine sharp point

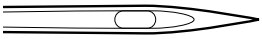
Mircro fiber fabrics and silk

Double needle
130/705 H-ZWI/70-100

Needle distance:
1.0/1.6/2.0/2.5/3.0/4.0/6.0/8.0

Visible hems in stretch fabrics, pintucks, decorative sewing

Quilting
130/705 H-Q/75-90



Fine sharp point

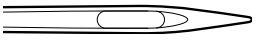
Straight and topstitching

Triple needle
130/705 H-DRI/80

Needle distance: 3.0

Visible hems in stretch fabrics; Decorative sewing

Embroidery
130/705 H-SUK/70-90

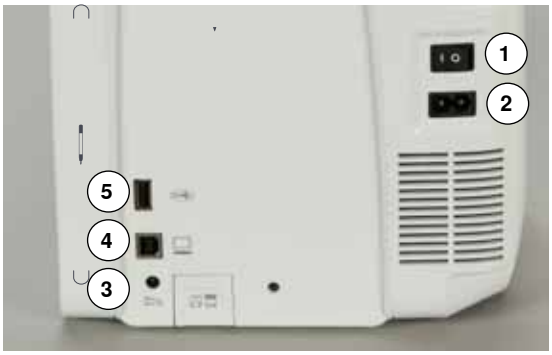


Large eye, slight ball point

Embroidery on all natural and synthetic fabrics

Sewing preparation

Power Switch/Power Cable



1 Power Switch
The sewing computer is switched on («I») and off («0») with the power switch.

I the sewing computer is switched on
0 the sewing computer is switched off

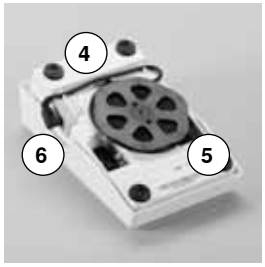
2 Power plug socket
3 Foot control socket
4 PC-connection
5 USB-connection

Magnetic holder for Touchscreen pen

The Touchscreen pen can be stored easily and securely at the two magnets **1**.

Foot control

Connecting the foot control
- unwind the cable
- plug the cable in the outlet **1**
- unwind the cable to the desired length and slip into **4** or **5**



Sewing speed control
Control the sewing speed by pressing the foot control **2** more or less.

Raising or lowering the needle
- sink the heel back **3** on the foot control
- ► the needle adjusts the position up/down

Removing the foot control
- wind the cable around the reel
- plug cable into **6**

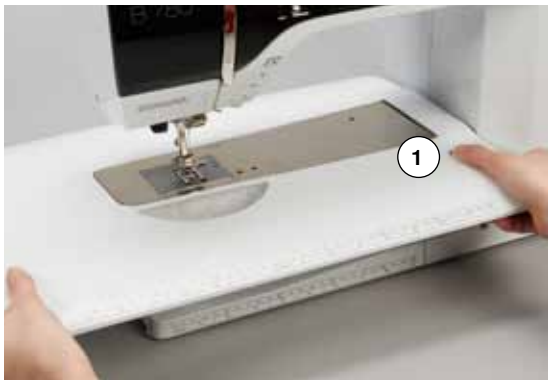
USA/Canada only: Use only foot controller type LV-1 with sewing computer B 780.

Slide-on table

The slide-on table increases sewing surface.

Attaching the slide-on table

- turn the handwheel or press the «Needle stop»-button (see page **13**)
- ► needle is raised
- press «Presser Foot Position»-button
- ► presser foot is lifted
- slide table to the right, over the free arm until it engages



Removing the slide-on table

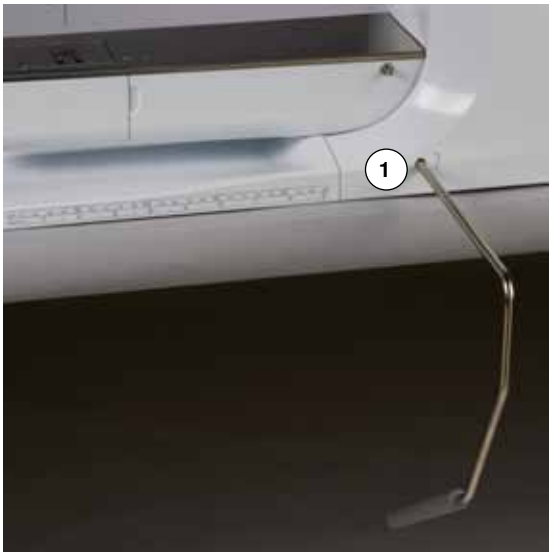
- raise the needle and presser foot
- press button **1** down
- pull slide-on table to the left

Seam guide

- press the release button and insert into the groove (underside of table) from left or right

Can be moved over the entire table length.

Presser foot lifter



Raising or lowering presser foot via FHS.

Attaching the Free Hand System

- insert into the opening **1**

Raising and lowering the presser foot

- with your knee push lever to the right
- you should be able to operate the FHS with your knee in your normal sitting position
- ► the presser foot is raised; the feed dog is lowered simultaneously. The thread tension is released
- ► the feed dog is raised as soon as the first stitch is sewn

Your dealer can adjust the FHS if necessary.

Vertical spool pin

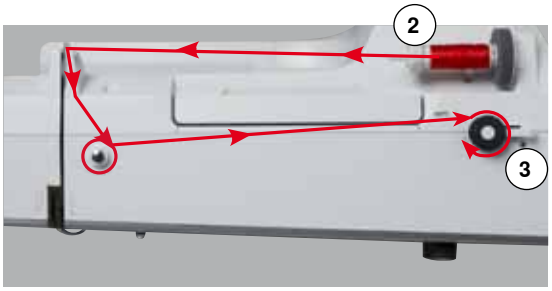
The vertical spool pin is on the side behind the handwheel.
It is an essential aid for sewing with more than one thread, e.g. double needle work and can also be used for winding the bobbin while sewing.

- turn the spool pin **1** as far it will go

- use foam pad **2** for stability with all thread spools

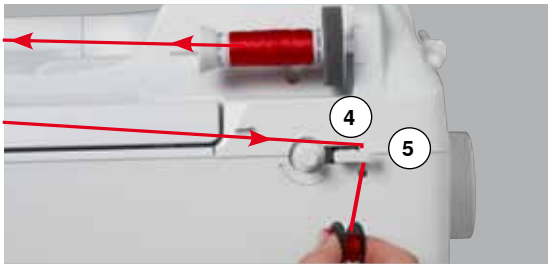
Winding the lower thread

- turn power switch to «I»
- place empty bobbin on spindle **1**

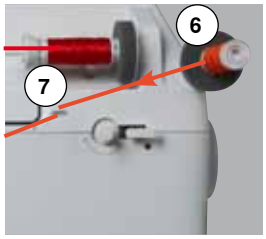


- place foam pad on the spool pin
- place thread on the spool pin
- attach appropriate spool disc **2**
- following the direction of the arrow, take the thread through the rear guide and around the pre-tension stud
- wind the thread two to three times around the empty bobbin
- cut off any excess thread on the thread cutter **3**

Appropriate spool disc
Diameter of thread spool determines disc size. There must be no gap between the disc and the spool.

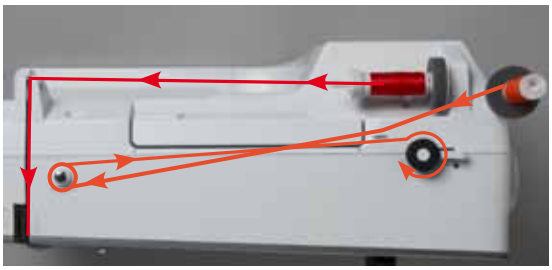


- push engaging lever **4** towards bobbin
  - the winder works automatically
  - the Display to wind the bobbin appears
- move the round knob in the Display using the Touchscreen pen or the finger to the left/right or
- turn the stitch width knob (see page **12**)
  - the winding speed is altered
  - the motor will stop automatically when the bobbin is full
  - the Display is closed
- remove bobbin and pull the thread over thread cutter **5** to cut it



Bobbin winding while sewing

- attach foam pad on the vertical spool pin **6**
- place thread on the vertical spool pin
- following the direction of the arrow, take the thread through the thread guide **7** and



- guide around the pre-tension stud

Then proceed as mentioned above.

It is recommended to reduce the winding speed when winding from the vertical spool pin.

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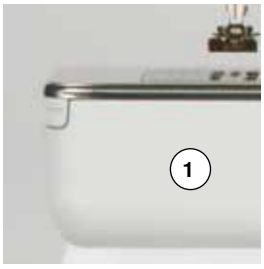
Inserting a bobbin/Threading lower thread

Removing the bobbin from the bobbin case

- press the release lever at the bobbin case (see illustration «Changing bobbin case» on this page)
- remove the bobbin case according to following description
- insert the bobbin so that the thread is wound counterclockwise **1**
- pull the thread from the left into the slot

- pull the thread to the right under the spring **2**
- lead the thread beneath the thread guide and pull upwards
- ► the thread is threaded in the guide
- pull the thread
- ► the bobbin must turn counterclockwise

Removing/inserting bobbin case



Removing bobbin case

- raise the needle
- turn power switch to «0» (off)
- open bobbin cover **1**
- press bobbin case release **2**
- remove the boobin case

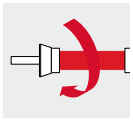
Inserting the bobbin case

- hold the bobbin case with the thread guide **3** pointing upwards
- put the thread guide into the notch **4** of the hook race cover
- insert the bobbin case and press the center until it engages

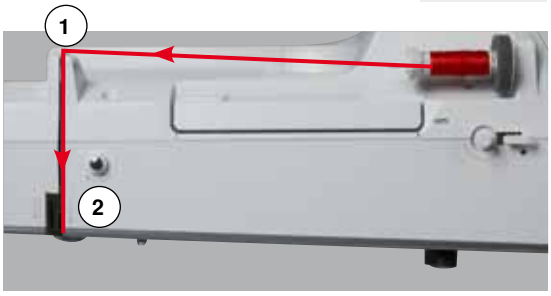
Bobbin thread cutter

- pull the thread over thread cutter **5** to cut it
- close the bobbin cover

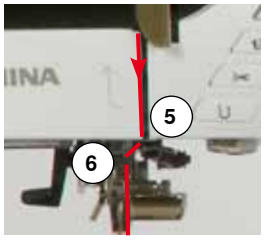
Threading the upper thread



- raise the needle and presser foot
- turn power switch to «0» (off)
- place foam pad on the spool pin
- place spool on pin so that the thread unwinds clockwise
- attach appropriate spool disc



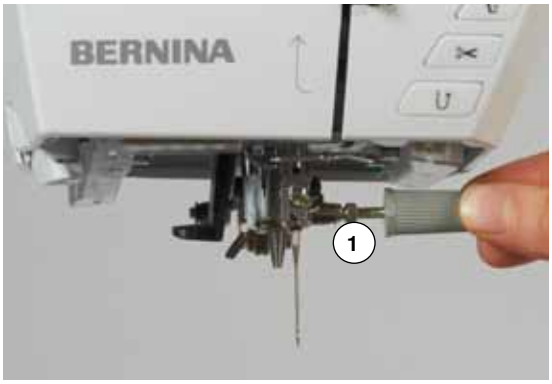
- hold the thread and lead it from the spool along the direction of the arrow into the rear guide **1**
- then into slit of upper thread tension **2**



- pull thread down to the right of the take-up cover and around **3**
- take thread up to the left of the cover and around **4**, placing it in the take-up lever
- take thread down and through guides **5** and **6**
- thread the needle (see page **24**)

Appropriate spool disc
Diameter of thread spool determines disc size. There must be no gap between the disc and the spool.

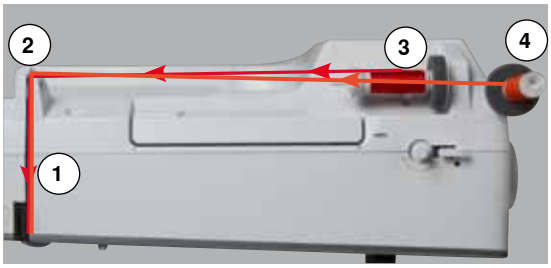
Changing the needle



Removing the needle
- raise the needle
- remove or lower presser foot (see page **24, 32**)
- turn power switch to «0» (off)
- loosen the needle clamp screw **1** using the gray screwdriver
- pull the needle down to remove

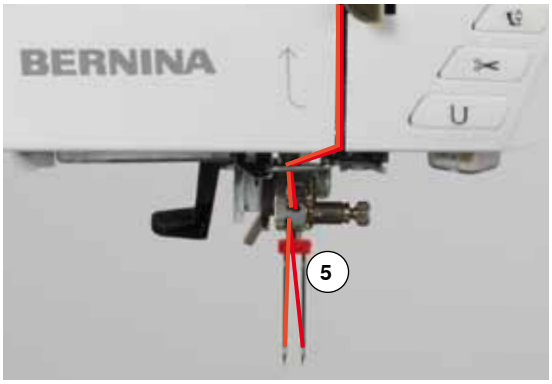
Inserting the needle
- flat side of needle to the back
- insert the needle as far as it will go
- tighten needle clamp **1** using the gray screwdriver

Threading the double needle



Threading the first thread

- raise the needle and the presser foot, remove the presser foot if necessary
- turn power switch to «0» (off)
- insert double needle
- place foam pad on the spool pin
- place thread spool **3** on horizontal spool pin
- attach appropriate spool disc
- take thread through rear guide **2**
- guide the thread to the front in the slit and past the tension disc **1** on the **right** side
- guide the thread to the needle as usual and
- thread the **right** needle manually



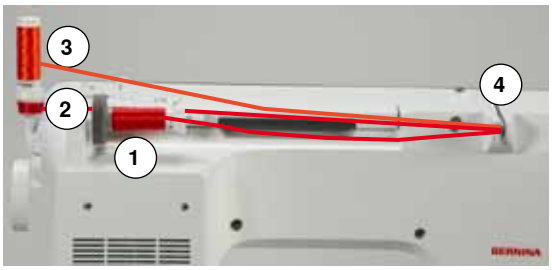
Threading the second thread

- place foam pad on vertical spool pin
- place the second thread spool **4** on the vertical spool pin
- take thread through rear guide **2**
- guide the thread to the front in the slit and past the tension disc **1** on the **left** side
- guide the thread to the needle as usual and
- thread the **left** needle manually

Threads **5** must not be twisted together.

When using the vertical spool pin, always add a foam pad. This prevents the thread from twisting around the spool pin.

Threading the triple needle

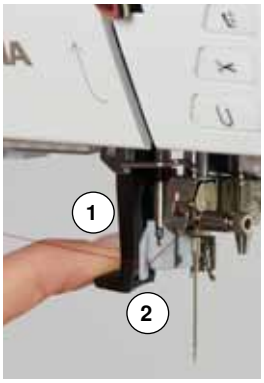


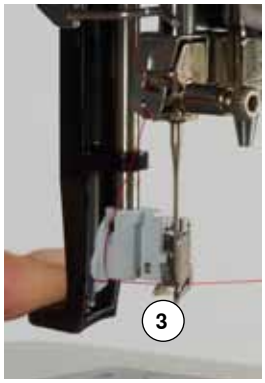
Two thread spools and one full bobbin are needed.

- insert triple needle
- place one thread spool **1** on horizontal spool pin
- place second thread spool **3** and the bobbin **2**, separated by a spool disc, on vertical spool pin (both spools must to turn in the same direction)
- thread as usual and
- guide **two** threads on the **left** side of the tension disc **4** and **one** thread past the **right** side
- guide threads to the needle as usual
- and thread every needle manually

By using the Guide eyelet for metallic and silk thread (optional accessory) the thread release from the stacked spool/bobbin can be enhanced.

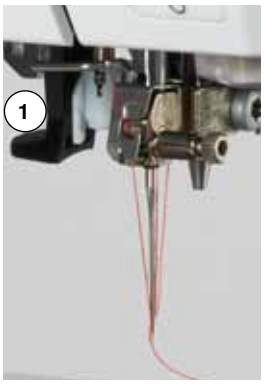
Thread needle

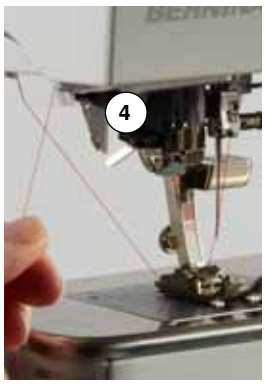




Position the needle by pressing the foot control once (1 stitch).

- raise the needle
- lower the presser foot
- turn power switch to «0» (off)
- hold thread to the left and back





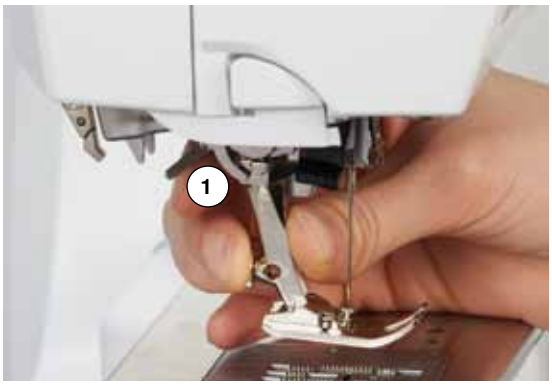
- press lever **1** down and hold it
- guide thread around the hook **2** to the right in front of the needle
- put the thread from the front into the guide **3** until it catches in the wire hook

- release lever **1** and thread
- ► needle is threaded
- pull the thread to the back and

- put the thread under the foot and pull it from back to front over the thread cutter on left side of the head frame **4**, cut

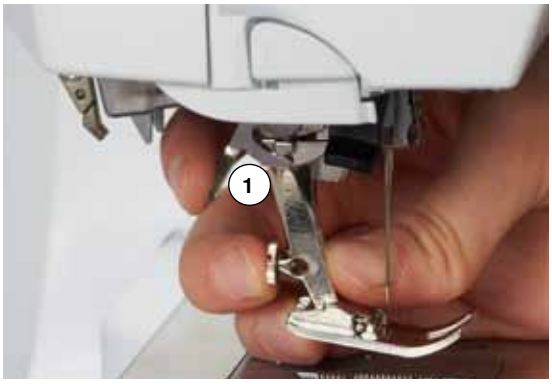
Threads release automatically as soon as the first stitch is sewn.

Changing the presser foot



Removing the presser foot

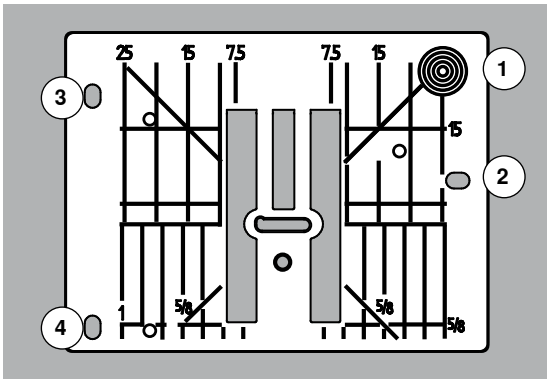
- raise the needle and presser foot
- turn power switch to «0» (off)
- raise the clamping lever **1**
- remove the presser foot



Attaching the presser foot

- guide the presser foot upwards over the cone
- press the clamping lever **1** down

Stitch plate



Marks on the stitch plate

– the stitch plate is marked with vertical, horizontal and diagonal lines in **mm** and **inches**
– the lines help to guide the fabric for sewing seams and precise topstitching, etc.
– the horizontal markings are helpful for sewing corners and buttonholes, etc.
– the diagonal markings are useful for quilting
– needle insertion point is position «0» (center needle position)
– the vertical measurements correspond to the distance between the needle and the line
– measurements are marked to the right and to the left of center needle position

Removing the stitch plate

- press «Feed dog»-button **5**
- ► the feed dog is lowered
- turn power switch to «0» (off)
- remove presser foot and needle
- press the stitch plate down at the right back corner **1** until it flips up
- remove the stitch plate

Replacing the stitch plate

- place the openings of the stitch plate **2**, **3** and **4** above the corresponding guide pins
- press down until it clicks into place
- press «Feed dog»-button
- ► the feed dog is raised as soon as the first stitch is sewn

Thread tension

Higher upper thread tension = the upper thread is tightened, which pulls the lower thread up to the top of the fabric.
Lower upper thread tension = the upper thread is loosened, which enables it to be pulled to the back of the fabric.

Basic settings are applied automatically when a stitch pattern or program is selected.

The upper thread tension is set optimally at the BERNINA factory and the sewing computer has been tested. Metrosene-/Seralon thread size 100/2 (Company Mettler, Switzerland) is used for upper and lower thread.

In case of using other types of sewing or embroidery threads, the optimal tension may vary. Therefore it may be necessary to adjust the upper thread tension according to the fabric and the desired stitch pattern.

Altering upper thread tension
- touch «Upper thread tension»-icon

- the white bar within the scale and the number in the icon show the basic setting
- touch icons «+»/«-» or
- turn stitch width or stitch length knob to the left or to the right or
- move the round knob in the Display using the touch pen or the finger
- upper thread tension is tightened or loosened
- the alteration of the upper thread tension is visible in the yellow-framed icon and in «Upper thread tension»-icon
- basic setting remains visible (small white dot on the slider)
- the alteration of the upper thread tension only affects the selected stitch

Saving the upper thread tension
- touch «Close»- or «Upper thread tension»-icon
- the settings are saved and the Display closes

Back to basic settings
- touch the yellow-framed icon
- basic setting is reset
- switch off the sewing computer
- any alterations are deleted

Security Program

- touch «Needle»- or «Stitch plate»-icon
- ► «Needle-/Stitch plate overview»-Display appears

Display
- ► yellow flag = recommended, optimal selection
- ► green flag = optimal element is selected

If an inappropriate needle/stitch plate has been selected for the selected stitch pattern, an animation will be displayed and the sewing computer cannot be started.
The function remains active even when the sewing computer is turned off and on.

Selecting the needle
- touch desired «Needle»-icon
- ► stitch width is limited automatically
- ► this prevents the inserted special needle (double needle etc.) from hitting the presser foot or the stitch plate = no needle breakage
- ► numbers in the needle icons indicate the needle distance in mm
- touch «Standard needle»-icon
- ► Standard needle is activated again
- ► the stitch width limitation is deactivated

Selecting the stitch plate
- touch desired «Stitch plate»-icon
- ► stitch width is limited automatically
- ► this prevents the inserted needle from hitting the presser foot or the stitch plate = no needle breakage

Saving
- touch «Close»-icon or «Needle»- or «Stitch plate»-icon
- ► the settings are saved and the Display closes

Needle Chart

- press «Needle linfo»-icon
- ► «Needle index»-Display appears

Selecting needle
- select attached needle and needle size

Selecting a Presser Foot

For every selected stitch pattern the optimal presser foot is displayed in «Presser foot selection»-icon.

Display
- ► yellow flag = optional choice for selected stitch pattern
- ► green flag = optimal element is selected

- attach the recommended presser foot
- touch «Presser foot selection»-icon
- ► the «Presser foot selection»-Display appears
- touch the icon showing the attached presser foot or attach another presser foot which is displayed in the overview and specially marked as optimal presser foot and touch the respective icon in the «Presser foot selection»-Display.
- scroll through the overview via the arrow icons below the presser foot icons or touch «0-9»-icon and enter the number directly.
- ► if the needle risks hitting the presser foot, the sewing computer cannot be started and an error message appears
- ► the attached presser foot is now displayed in «Presser foot selection»-icon

Optional presser feet
- touch icon
- ► the optional presser feet for the selected stitch pattern are displayed directly

Saving
- touch the «Presser foot selection»- or the «Close»-icon
- ► the settings are saved and the Display closes

Return to basic settings
- touch the icon with the selected presser foot or «clr»-button
- ► no presser foot is selected

ATTENTION!
It is IMPORTANT to select the attached presser foot to enable the sewing computer to recognize it and to activate the respective safety settings.

Altering presser foot pressure

- touch «Presser foot pressure»-icon

- presser foot pressure scale is displayed
- turn stitch width or stitch length knob to the left or to the right or
- touch «-»- or «+»-icon
- presser foot pressure is increased or decreased
- alteration of the presser foot pressure is displayed in the scale and in the yellow-framed icon
- basic setting remains visible (small white dot on the slider)

When sewing thick material, e.g. quilting

- turn stitch width or stitch length knob to the left or
- touch «-»-icon
- the presser foot pressure decreases to minus
- the presser foot is slightly lifted and the material can be moved more easily

Saving presser foot pressure

- touch «Close»-icon or «Presser foot pressure»-icon
- the settings are saved and the Display closes

Resetting the basic setting

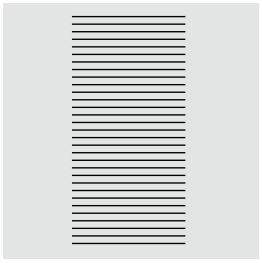
- touch the yellow-framed icon
- basic setting is reset

Reset the presser foot pressure to basic setting after finishing the task.

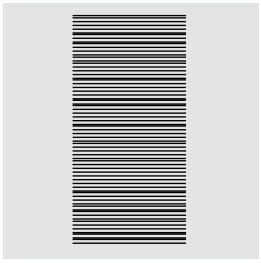
Feed dog and Fabric feed

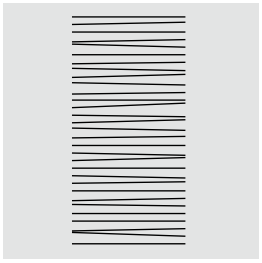
With each stitch the feed dog moves forward by one step. The length of this step is determined by the stitch length selected.

With a very short stitch length the steps are very short. The fabric moves relatively slowly under the presser foot, even at full sewing speed, e.g. buttonholes and satin stitch and decorative stitches are sewn with a very short stitch length.



Let the fabric feed evenly.



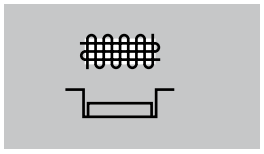


ATTENTION!
Pulling, pushing or holding back the fabric can result in damages of the needle and stitch plate.

Pulling, pushing or holding back the fabric will result in uneven stitches.

Feed dog lowered/ready to sew

«Feed dog»-button **1** flush with housing.
- feed dog is ready to sew



«Feed dog»-button **1** pressed.
- feed dog is lowered

For free-motion sewing (darning, embroidery, quilting, etc.).

Notes

Functions

Overview «Function»-buttons

«Start/Stop»-button
– starts and stops the sewing computer when operating **with** or **without** foot control
– starts and stops the BSR-Function if the BSR foot is attached and activated

«Presser foot position»-button
● press the button
► the presser foot is lowered and lifted a bit again for easy positioning of the material
► the presser foot is lowered on the fabric when start sewing
● press the button again
► the foot is lifted

«Automatic thread cutter»-button
– the upper and the lower threads are cut automatically
– 2-6 securing stitches can be programmed in the setup program. These are sewn before the thread is cut

«Quick reverse»-button
– secures the seam beginning and end: sews in reverse as long as the button is pressed
– used to program the buttonhole length
– used to program the darning length
– used to determine end of stitching in straight stitch Securing Stitch No. 5
– used for securing in Quilters securing program No. 1324

«Pattern begin»-button
– the needle moves to the beginning of a stitch pattern or program

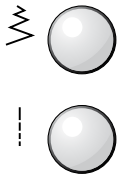
«Needle stop»-button
● press the button
► the needle is raised or lowered in the same way as by sinking the heel back on the foot control

Programmable «Pattern end-/Securing»-button
● press button before or during sewing
► single pattern is secured at the end, with the selected number of stitches programmed
● press button before or during sewing of a combination
► the active pattern of the combination is secured at the end, with the selected number of stitches programmed
● the number and type of the securing stitches can be programmed in the setup program
► a stop symbol which appears during sewing indicates that the function is activated

Slide speed control
– the sewing and embroidering speed is infinitely variable with the slide

«Automatic Securing Program»-button

- ► press the button before sewing start = the individual pattern/combination is secured at the beginning with the number of programmed stitches
- ► keep the button pressed while sewing = the sewing computer stops at once and sews the number of programmed stitches
- ► the number and type of the securing stitches can be programmed in the setup program



Stitch width and Stitch length Knobs (Multifunction)

- – to adjust stitch width or stitch length
- – to alter thread tension
- – to set the buttonhole slit width or the button size
- – to adjust the balance
- – various alterations in the setup program
- – various alterations when embroidering

«Needle position»-buttons

- • press the left button
- ► needle moves to the left
- • press the right button
- ► needle moves to the right
- • keep button pressed
- ► quick change
- – total of 11 needle positions (5 left, 5 right, 1 center = 0)

Needle stop position up and «Quick reverse»-button

If «Quick reverse»-button is pressed while sewing or after stopping (e.g. zig-zag) with programmed needle stop **up**, the sewing computer sews one stitch forward before it switches to sewing in reverse.

Needle stop position down and «Quick reverse»-button

If «Quick reverse»-button is pressed after stopping (e.g. zig-zag) with programmed needle stop **down**, the sewing computer switches to sewing in reverse immediately.

Display

Overview Main Display

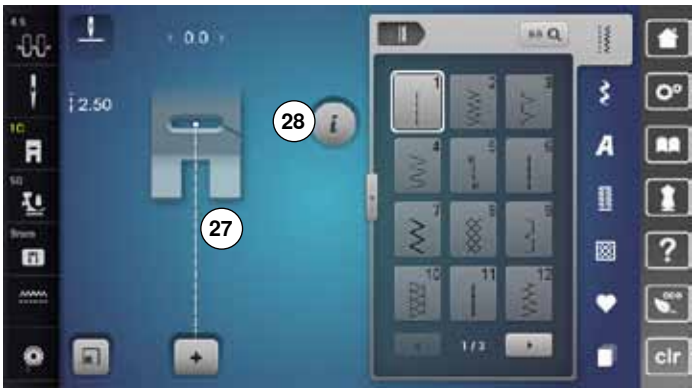
System settings
1 Home
2 Setup Program
3 Tutorial
4 Creative Consultant
5 Help
6 ECO
7 Clear settings

External Functions/Views
8 Upper thread tension
9 Security program - needle
10 Presser foot indicator/Selecting a presser foot
11 Presser foot pressure
12 Security program - stitch plate
13 Feed dog position up/down
14 Filling of the bobbin

Menu Selection
15 Stitch selection by number
16 Practical stitches
17 Decorative stitches
18 Alphabets
19 Buttonholes
20 Quilt stitches
21 Personal program/Memory
22 History

Selection
23 Match the stitch pattern size to the Display
24 Single and combi mode
25 Scroll right/left

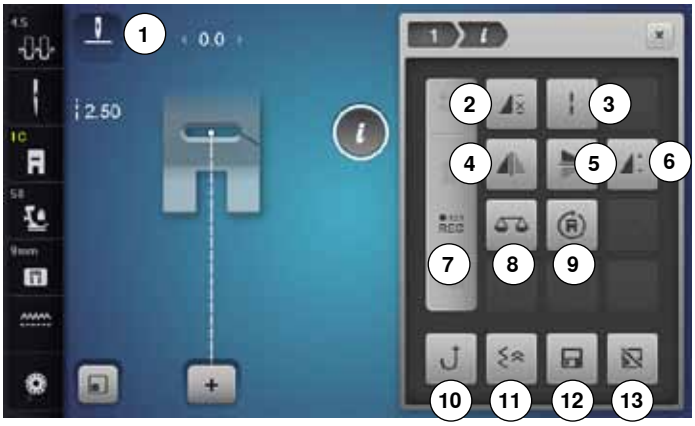
Stitch Pattern Area
26 Stitch pattern selection



Stitch Pattern Display
27 Display of the stitch pattern selected
28 Information

Functions - Display

Sewing Functions Overview



- touch «i»-icon
- ► «Function»-Display appears

Functions

1 Needle stop up/down
2 Pattern repeat
3 Long stitch
4 Mirror Image left/right
5 Mirror Image up/down
6 Altering pattern length/Stitch density
7 Stitch Counter
8 Balance
9 Multi-Directional sewing
10 Permanent reverse sewing
11 Backstepping
12 Personal memory permanent
13 Basic setting stitch pattern

General Functions

Information
- touch the icon
- ► another Display is opened

Back
- touch the icon
- ► the previous Display appears
- ► any alterations are accepted

Confirming selection
- touch the icon
- ► alteration/selection is activated or confirmed

Leaving the active Display
- touch the icon
- ► the Display is closed
- ► the previous Display appears

Needle stop up/down (permanent)
- touch icon
- ► the needle symbol jumps down
- ► the sewing computer stops with needle down
- touch the icon again
- ► the needle symbol jumps up
- ► the sewing computer stops with needle up

Pattern repeat
- touch icon 1x
- ► number 1 appears: the sewing computer stops at the end of an individual stitch or a stitch combination
- touch icon 2-9x
- ► numbers 2-9 appear: the sewing computer stops at the end of an individual stitch pattern or a stitch combination after the number of repeats selected

Long stitch
– the sewing computer sews every **second** stitch (max. stitch length 12 mm)
– applicable for practical and decorative stitches
Exception: buttonholes, alphabets

Mirror Image left/right
The sewing computer sews the stitch pattern mirrored, left/right referring to the sewing direction.

Mirror Image up/down
The sewing computer sews the stitch pattern mirrored up/down referring to the sewing direction.

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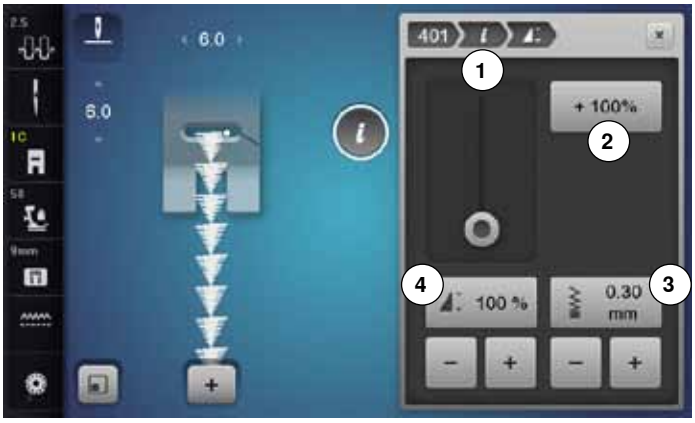


Altering stitch density 3
Certain decorative stitches (e.g. No. 401) allow an alteration of the stitch density. The set stitch pattern length will not be affected.
- touch «+»-icon
- ► the stitch density is reduced in 0.05 mm-steps
- ► the stitch distance is increased
- touch «-»-icon
- ► the stitch density is increased in 0.05 mm-steps
- ► the stitch distance is decreased
- ► touch «Back»-icon **1**
- ► the Function Overview appears again

Altering the pattern length 4
- move the round knob in the Display using the Touchscreen pen or the finger
- ► pattern length (Standard = 100%) is infinitely variable
- extend or shorten in 1%-steps using «+»/«-» or
- touch «+100%»-icon **2**
- ► pattern length is extended in 100%-steps

Maximum length is 1000%, shortest length 10%. Some stitch patterns are limited and cannot be extended to 1000%.

Stitch Counter
- when the desired length is obtained, press the «Quick reverse»-button
- ► the Display changes to «auto»
- ► the selected stitch pattern is temporarily programmed

Balance
To balance forward and reverse stitches.

Multi-Directional sewing
- ► use the stitch width knob to rotate the stitch pattern or combination in 0.5°-steps, the stitch length knob for 1°-steps or the direct-selection buttons for 45°-steps into the desired direction
- ► the sewing direction is shown in the left part of the Display
- ► the start is marked with a white dot and the end with a red cross
- ► the function only appears if the selected stitch can be sewn in multiple directions

Permanent reverse sewing
The sewing computer sews the selected stitch pattern in reverse.

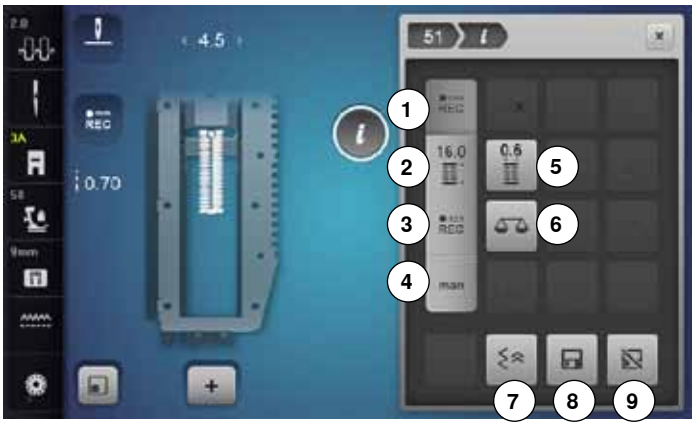
Backstepping
- ► the last 200 needle penetrations of a stitch pattern are retraced, i.e. sewn backwards

Personal memory permanent
- select a stitch pattern and alter e.g. stitch length or stitch width
- touch the icon
- ► the altered stitch pattern is saved

Basic setting of stitch pattern
- touch the icon
- ► any alterations of the selected stitch pattern are reset to basic setting

Overview Functions buttonholes

- press the «Buttonhole»-button
- select the buttonhole
- touch «i»-icon



Altering the buttonhole

1 Programming the buttonhole length
2 Buttonhole length direct entry
3 Stitch counter buttonhole
4 Manual buttonhole
5 Buttonhole slit width
6 Balance
7 Backstepping
8 Personal memory permanent
9 Back to basic setting

Programming buttonhole length

- the icon is active automatically after a buttonhole has been selected
- determine the buttonhole length by pressing the «Quick reverse»-button or
- program the indicated length directly in the icon below by touching the icon
- function turns inactive after programming the length
- if a new length is to be programmed, touch the icon again

Buttonhole length direct entry

Determine the bottonhole length via the stitch width or stitch length knob. Length in mm.

Stitch counter buttonhole

Having sewn the desired length of the 1st bead, then

- press «Quick reverse»-button

Having sewn the desired length of the 2nd bead, then

- press «Quick reverse»-button
- Display shows «auto»
- the buttonhole is programmed

Manual buttonhole

- sew a manual buttonhole in 5 or 7 steps (depending on buttonhole type)
- select every step via the arrow icons «up»/«down» or via the direct selection

Buttonhole slit width

- set the buttonhole slit width to between 0.1 mm and 2.0 mm using the stitch width or the stitch length knob or the arrow icons

Balance

To balance forward and reverse stitches.

Backstepping

- the last 200 needle penetrations of a stitch pattern are retraced, i.e. sewn backwards

Personal memory permanent

- select a stitch pattern and alter e.g. stitch length or stitch width
- touch the icon
- the altered stitch pattern is saved

Back to basic setting

- touch the icon
- any alterations of the selected stitch pattern are reset to the original basic setting

Overview Functions Alphabets

- touch «Alphabet»-button
- select Alphabet
- touch «i»-icon

Altering Alphabet

1 Pattern repeat
2 Font size in alphabets
3 Mirror Image left/right
4 Mirror Image up/down
5 Altering the pattern length
6 Balance
7 Multi-Directional sewing
8 Permanent reverse sewing
9 Backstepping
10 Personal memory permanent
11 Back to basic setting

Pattern repeat
- touch icon 1x
- ► number 1 appears: the sewing computer stops at the end of an individual stitch patttern or a stitch pattern combination
- touch icon 2-9x
- ► numbers 2-9 appear: the sewing computer stops at the end of an individual stitch patttern or a stitch pattern combination after the number of repeats selected

Font size in alphabets
- select alphabet
- ► letter size is 9 mm
- touch the icon
- ► the small «A» is activated
- ► the font size is reduced

Mirror Image left/right
The sewing computer sews the stitch pattern mirrored, left/right referring to the sewing direction.

Mirror Image up/down
The sewing computer sews the stitch pattern mirrored up/down referring to the sewing direction.

Altering the pattern length
- move the round knob in the Display using the touch pen or the finger
- ► pattern length (Standard = 100%) is infinitely variable
- extend or shorten in 1%-steps using the «+»/«-»-icons or
- touch «+100%»-icon
- ► the pattern length is extended in 100%-steps

Maximum length is 200%, shortest length is 10%.

Balance
To balance forward and reverse stitches.

Multi-Directional Sewing
- ► use the stitch width knob to rotate the stitch pattern or combination in 0.5°-steps, the stitch length knob for 1°-steps or the direct-selection buttons for rotating in 45°-steps into the desired direction
- ► the sewing direction is shown in the left part of the Display
- ► the start is marked with a white dot and the end with a red cross
- ► the function only appears if the selected stitch can be sewn in multiple directions

Permanent reverse sewing
The sewing computer sews the selected stitch pattern in reverse.

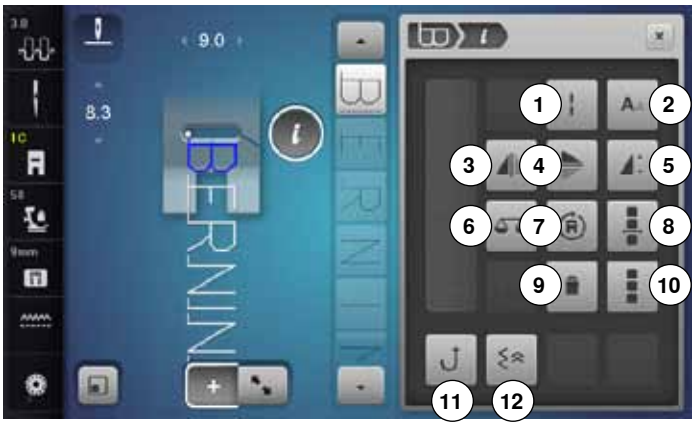
Backstepping
- ► the last 200 needle penetrations of a stitch pattern are retraced, i.e. sewn backwards

Personal memory permanent
- select a stitch pattern and alter e.g. stitch length or stitch width
- touch the icon
- ► the altered stitch pattern is saved

Back to basic setting
- touch the icon
- ► any alterations of the selected stitch pattern are reset to basic setting

Overview Functions Combi mode

- touch «Combi mode»-icon
- select stitch pattern
- touch «i»-icon



Combination mode

1 Long stitch (without alphabets)
2 Font size in alphabets
3 Mirror Image left/right
4 Mirror Image up/down
5 Altering the pattern length
6 Balance
7 Multi-Directional sewing
8 Editing a combination at cursor position
9 Deleting
10 Editing the whole combination
11 Permanent reverse sewing
12 Backstepping

Long stitch (without alphabets)
– the sewing computer sews every **second** stitch (max. stitch length 12 mm)
– applicable for practical and decorative stitches
Exception: alphabets

Font size in alphabets
- select Alphabet
- Font size is 9 mm
- touch icon
- small «A»
- the font size is reduced

Mirror Image left/right
The sewing computer sews the stitch pattern mirrored, left/right referring to the sewing direction.

Mirror Image up/down
The sewing computer sews the stitch pattern mirrored up/down referring to the sewing direction.

Altering the pattern length
- move the round knob in the Display using the touch pen or the finger
- pattern length (Standard = 100%) is infinitely variable
- extend or shorten in 1%-steps using «+»/«-»-icons or
- touch «+100%»-icon
- the pattern length is extended in 100%-steps

Maximum length is 1000%, shortest length 10%. Some stitch patterns are limited and cannot be extended to 1000%.

Balance
To balance forward and reverse stitches.

Multi-Directional Sewing
- use the stitch width knob to rotate the stitch pattern or combination in 0.5°-steps, the stitch length knob for 1°-steps or the direct-selection buttons for rotating in 45°-steps into the desired direction
- the sewing direction is shown in the left part of the Display
- the start is marked with a white dot the end with a red cross
- the function only appears if the selected stitch can be sewn in multiple directions

Editing combinations at cursor position
- touch the icon
- Display appears

Deleting
Deletes an individual stitch.

Editing the whole combination
- touch the icon
- Display appears

Permanent reverse sewing
The sewing computer sews the selected stitch pattern in reverse.

Backstepping
- the last 200 needle penetrations of a stitch pattern are retraced, i.e. sewn backwards

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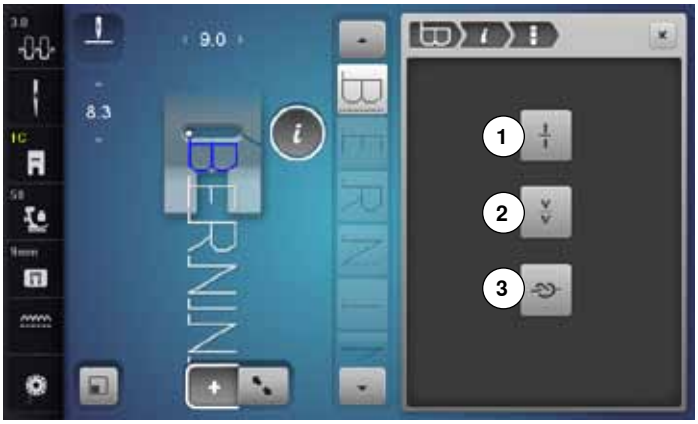
- touch «Combi mode»-icon
- select the stitch pattern
- touch «i»-icon
- touch «Cursor position»-icon



Functions

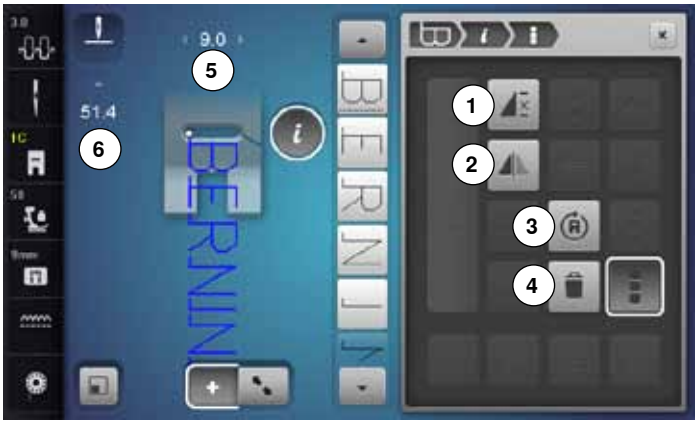
1 Combination subdivider (1)
2 Combination subdivider (2)
3 Securing

Combination subdivider (1)
– every combination can be subdivided into several parts
– only the combination section where the cursor is located will be sewn
– to sew another section, the cursor must be placed into this part

Combination subdivider (2)
– each combination can be interrupted as desired
– after stopping, the needle moves to the next part to be sewn

Securing
– to program the function within a pattern combination
– each individual pattern of the combination can be secured at the start or the end

- touch «Combi mode»-icon
- select the stitch pattern
- touch «i»-icon
- touch «Edit whole combination»-icon



Functions

1 Combination repeat
2 Mirror image left/right
3 Multi-Directional sewing
4 Deleting

Combination repeat

- touch icon 1x
- ► number 1 appears: the sewing computer stops at the end of a pattern combination
- touch icon 2-9x
- ► numbers 2-9 appear: the sewing computer stops at the end of a stitch combination after the number of repeats selected

Mirror image left/right
The sewing computer sews the whole combination mirrored, left/right referring to the sewing direction.

Multi-Directional Sewing

- ► use the stitch width knob to rotate the stitch pattern or combination in 0.5°-steps, the stitch length knob for 1°-steps or the direct-selection buttons for rotating in 45°-steps into the desired direction
- ► the sewing direction is shown in the left part of the Display
- ► the start is marked with a white dot the end with a red cross
- ► the function only appears if the selected stitch can be sewn in multiple directions

Deleting
Deletes the whole combination.

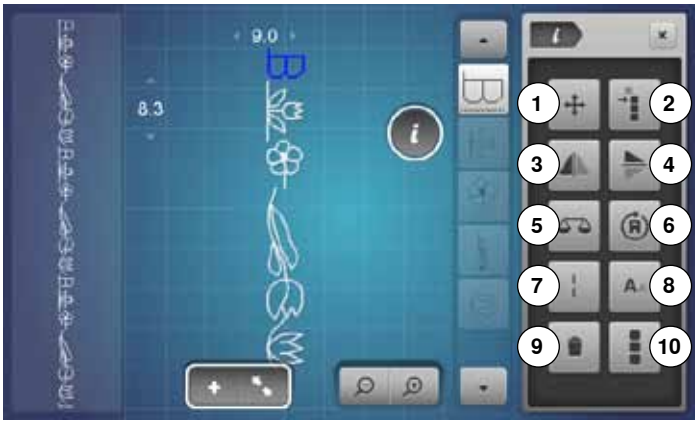
Adjusting the width in the combination

- touch «Stitch width Display»-icon **5**
- ► «Stitch width»-Display appears
- touch «Adjust width in combination»-icon
- ► the width of all the stich patterns are adjusted to the widest stitch pattern within the combination

Adjusting the length in the combination

- touch «Stitch length Display»-icon **6**
- ► «Stitch length»-Display appears
- touch «Adjust Length in Combination»-icon
- ► the length of all the stich patterns are adjusted to the longest stitch pattern within the combination

- touch «Combi mode»-icon
- Creating combinations
- touch «Editing mode»-icon
- touch «i»-icon



Functions

1 Connecting stitches
2 Moving single stitch patterns or multiple stitch patterns of a combination
3 Mirror Image left/right
4 Mirror Image up/down
5 Balance
6 Multi-Directional sewing
7 Long stitch
8 Font size in alphabets
9 Deleting
10 Editing the whole combination

Connecting stitches
Opens the Display to add connecting stitches.

Moving single stitch patterns in a combination
Single stitch patterns of combinations can be moved horizontally, vertically or diagonally.

Moving multiple stitch patterns of a combination
Multiple stitch patterns of combinations can be moved horizontally, vertically or diagonally.

Mirror Image left/right
The sewing computer sews the stitch pattern mirrored, left/right referring to the sewing direction.

Mirror Image up/down
The sewing computer sews the stitch pattern mirrored up/down referring to the sewing direction.

Balance
To balance forward and reverse stitches.

Multi-Directional sewing
- use the stitch width knob to rotate the stitch pattern or combination in 0.5°-steps, the stitch length knob for 1°-steps or the direct-selection buttons for rotating in 45°-steps into the desired direction
- the sewing direction is shown in the left part of the Display
- the function only appears if the selected stitch can be sewn in multiple directions

Long stitch
– the sewing computer sews every **second** stitch (max. stitch length 12mm)
– applicable for practical and decorative stitches
Exception: alphabets

Font size in alphabets
- select alphabet
- letter size is 9 mm
- touch the icon
- small «A»
- the font size is reduced

Deleting
Deletes an individual stitch.

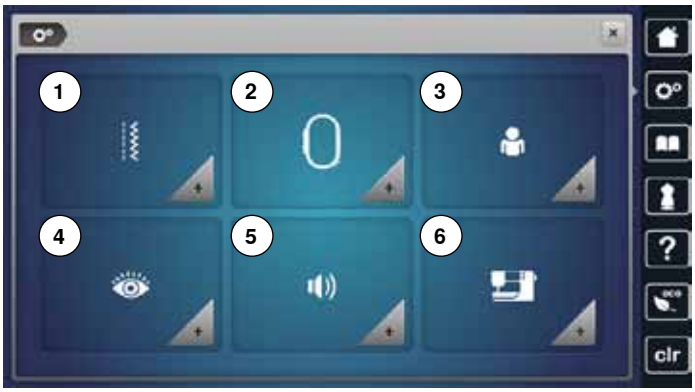
Editing the whole combination
- touch the icon
- Functions are activated

Setup Program

Overview «Setup»-Display

The Setup Program enables an individual adjustment of the Display surface and the settings according to your personal requirements.
After setting the sewing computer to your personal requirements, all changes made in the Setup Program are saved, even when the sewing computer is switched off.
Exceptions from this rule are outlined within the description of the function concerned in each case.

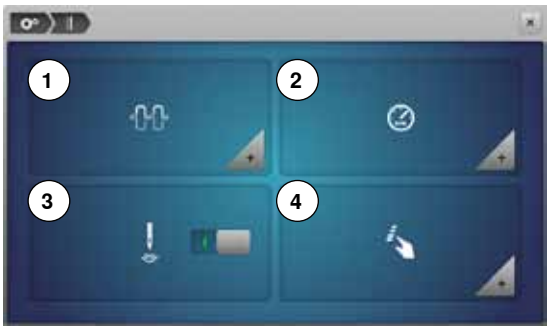
- press «Setup»-button
- ► «Setup Program»-Display is opened



1 Sewing settings
2 Embroidery settings
3 Personal settings
4 Monitoring
5 Audio system
6 Sewing computer settings

Sewing settings

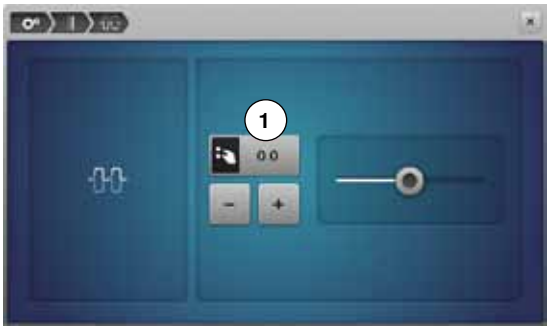
- touch «Sewing setting»-icon



1 Altering Upper thread tension
2 Sewing speed control
3 Securing stitches at pattern begin
4 Programming «Function»-buttons/«Function»-icon

Altering Upper thread tension

- touch «Thread tension»-icon



- move round knob in the Display to the left/right using the Touchscreen pen or the finger or
- turn the stitch width or the stitch length knob or
- touch «+»/«-»-icon
- ► alters the basic setting of the upper thread tension **1** at plus or minus two basic values
- ► 0.0 = basic setting

Sewing speed control

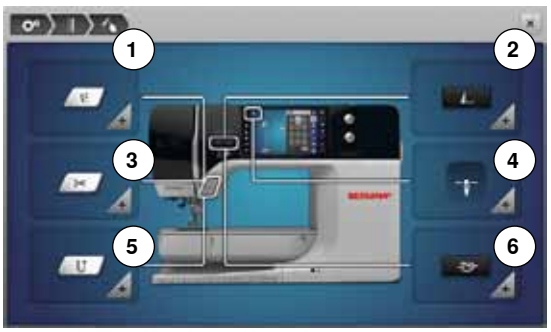
- touch «Sewing speed control»-icon

- move the round knob in the Display to the left/right using the Touchscreen pen or the finger or
- turn the stitch width or the stitch length knob or
- touch «+»/«-»-icon
- ► alters the maximal sewing speed **2**
- ► the number in the yellow-framed icon indicates the stitches per minute, the basic value is displayed by a small white dot

Securing stitches at pattern begin

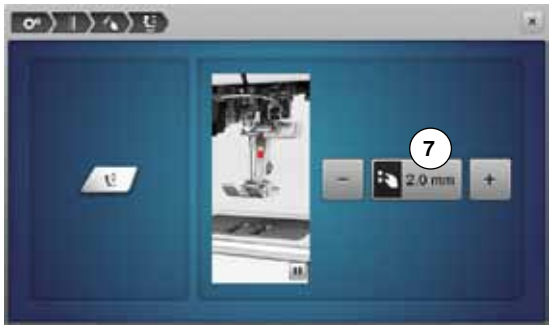
- ► the function is active (standard)
- ► 4 securing stitches are sewn before a stitch pattern starts
- touch gray icon
- ► function is inactive = no securing stitches will be sewn

Programming «Function»-buttons/«Function»-icon
- touch «Function»-icon



1 Hover position of the presser foot
2 Automatic securing program
3 Automatic thread cutter and securing stitches
4 Presser foot position with needle stop down
5 Programming «Quick reverse»-button
6 Programming «Securing»-button
- select desired icon

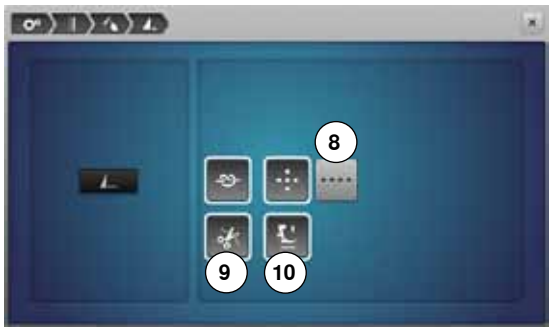
Hover position of the presser foot
- touch the «Hover position»-icon



- turn the stitch width or stitch length knob or
- touch «+»/«-»-icon
- the margin of lifting can be adjusted from 0 mm to 7 mm
  - Standard = 2 mm
  - the set value = the distance between material and presser foot, is displayed in the icon **7**

Back to basic settings
- touch the yellow-framed icon
  - basic setting is restored

Automatic securing program
- touch «Securing program»-icon



The number and type of the securing stitches of the external «Pattern end/Securing»-button can be programmed.
  - standard = four securing stitches sew in place
- select function **8** to secure with small stitches sewn in a forward direction
- via «+»/«-»-icons three to six securing stitches can be programmed

Automatic thread cutter
  - if function **9** is activated, the upper and lower thread are automatically cut after sewing the securing stitches

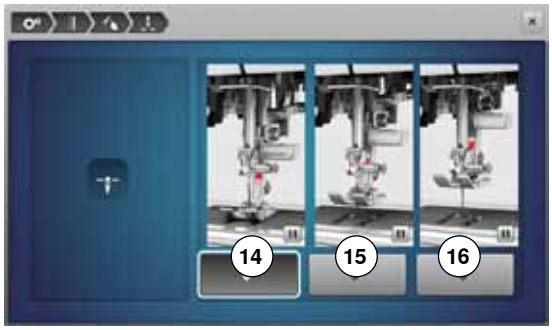
Raising the presser foot
  - if function **10** is activated the presser foot is raised after securing
  - if function is not activated, the presser foot remains down

Automatic thread cutter and securing stitches
- touch «Thread cutter»-icon

The number and type of the securing stitches before the thread is cut can be programmed.
  - standard = no securing stitches programmed
- touch icon **11**
  - icon **12** is activated
  - four securing stitches are sewn at the place
- select icon **13** to secure with small stitches sewn in a forward direction
- via «+»/«-»-icons two to six securing stitches can be programmed

Presser foot position with needle stop down

- touch «Presser foot position»-icon



- with activated icon **14**, the presser foot remains down when the sewing computer stops
- with activated icon **15**, the presser foot is raised enough to pivot the fabric (hover position)
- with activated icon **16**, the presser foot is raised into its highest position

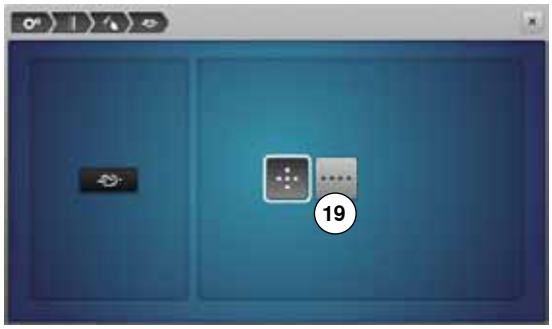
Programming «Quick reverse» button

- press «Quick reverse»-button

- with activated icon **17** the sewing computer sews in continuous reverse when pressing «Quick reverse»-button
- with activated icon **18** the sewing computer sews backwards stitch-by-stitch when pressing «Quick reverse» button

Programming «Securing»-button

- touch «Securing Button»-icon

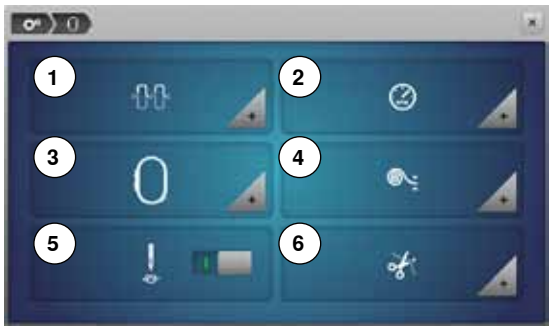


The number and type of the securing stitches can be programmed using the «Securing»-button.

- standard = four securing stitches in the same place
- select function **19** for small securing stitches sewn in a forward direction
- via «+»/«-»-icons two to six securing stitches can be programmed

Embroidery settings

- touch «Embroidery settings»-icon



1 Altering Upper thread tension
2 Altering Embroidery speed control
3 Calibrating the hoop
4 Fabric Thickness
5 Activating or deactiving securing stitches
6 Automatic cut

The settings for the upper thread tension **1** and embroidery speed **2** can be adjusted in the same way like the settings for sewing (see page **45**).

- touch the desired icon

Calibrating the hoop

- touch «Embroidery hoop»-icon

The hoop calibration adjusts the needle to the center of the hoop. Adjustments can only be done if the embroidery module is attached.

- select the required hoop and follow the instructions on the Display

- place embroidery template into the embroidery hoop
- ► the hoop is checked and the needle positioned to the center
- if the needle is **not** positioned exactly in the center of the embroidery template, it has to be centered by using the arrow icons
- touch ✔ icon
- ► the calibration is saved

Fabric Thickness

- touch the icon «Fabric thickness»

- if the fabric **7** is ticker than 4 mm, e.g. toweling, select 7.5 mm-icon or 10 mm-icon
  - this ensures that the embroidery hoop is only moved when the needle is no longer in the material
  - when the embroidery computer is switched off and on again, the setting returns to 4 mm again

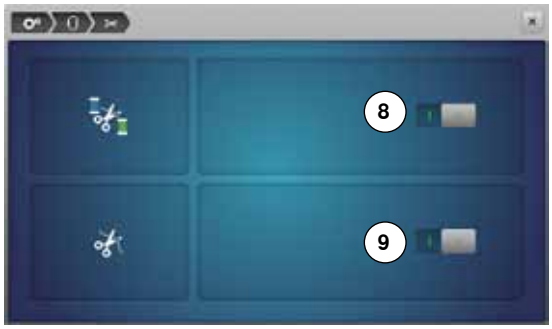
Activating or deactivating securing stitches

Standard = active.

- i.e. After the selection of an embroidery motif or the automatic thread cut 3 securing stitches will be triggered
- touch gray icon
  - function is inactive = no securing stitches will be sewn, i.e. the lower thread must be taken up manually (handwheel). The threads must be held when starting to embroider

Automatic cut

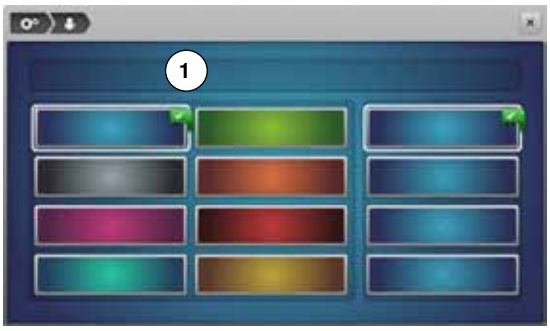
- touch «Thread cut»-icon



- touch icon **8**
  - when changing the thread color the automatic cut of the thread is activated or deactivated
- touch icon **9**
  - to turn the automatic thread cutter on or off

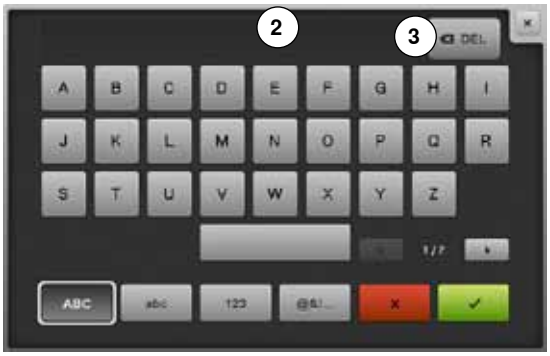
Personal settings

- select «Personal setting»-icon



- select the desired Display and wallpaper color

- touch «Text»-icon **1**

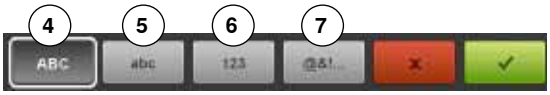


Welcome text
- create or change Welcome Text **2**

Space bar is at the bottom of the letter keys.
- Welcome text appears in the text icon **2** above the letter keys
- touch ✔ to confirm

Deleting Welcome text
- touch «Text»-icon **2**
- all entered text is deleted

Corrections
- touch icon **3**
- the entered text is deleted from right to left



4 «ABC» upper case characters (standard)
5 «abc» lower case characters (standard)
6 «1,2,3» numbers and mathematical characters
7 «@&!...» special characters

Monitoring

- touch «Monitoring»-icon

The following monitoring functions can be activated or deactivated:
1 Upper thread indicator
2 Lower thread indicator

Upper-/Lower thread indicator
- open eye = function active
- touch gray icon
- closed eye = function inactive

The sound type for the monitoring functions is set in the audio settings of the functions.

Altering the acoustic signals

Selecting Stitch Pattern/Function/BSR
- touch «Acoustic signal»-icon

By touching **1** the signals are activated or deactivated.

Stitch patterns and function selection **2** can be confirmed acoustically.
- select the desired sound for the stitch patterns/functions by touching the sound icon 1-4
- activate or deactivate the sound for quilting with BSR **3** by touching the «Loudspeaker»-icon
- touch «Loudspeaker»-icon
- ► the sounds are deactivated for the respective category

Sewing computer settings

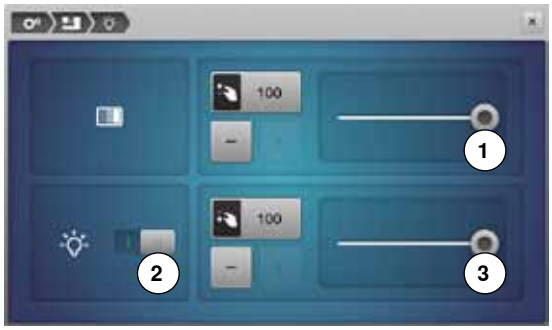
- touch «Sewing computer settings»-icon

1 Language selection
2 Display settings
3 Calibrating the Display
4 Basic settings
5 Cleaning/Update
6 Information

Language selection
- touch «Language selection»-icon

- select the desired language

Display settings
- touch «Display setting»-icon



Brightness
- move the round knob **1** in the upper part of the Display to the left/right using the Touchscreen pen or the finger or
- turn the stitch width knob or
- touch icon «+»/«-»
- ► the brightness of the Display changes
- ► the basic setting is displayed by a small white dot
- ► alterations are visible in the yellow-framed icon

Sewing light
- ► when icon **2** is active, the sewing light is on
- touch gray icon
- ► the sewing light is turned off

Brightness sewing light
- move the round knob **3** in the Display to the left/right using the Touchscreen pen or the finger or
- turn the stitch length knob or
- touch icon «+»/«-»
- ► the brightness of the sewing light changes
- ► the basic setting is displayed by a small white dot
- ► alterations are visible in the yellow-framed icon

The Display calibration can be opened as follows:
- turn off the sewing-/embroidery computer
- touch the two needle positioning buttons on the front panel and keep them pressed
- turn on the sewing-/embroidery computer and release the buttons as soon as the Display appears

Display Calibration
- touch «Display calibration»-icon

- touch the center of the cross using the Touchscreen pen
- ► the cross moves to the next position
- repeat this until all three positions shown are calibrated
- ► the Display closes
- ► the calibration is saved

Basic setting

- touch «Basic settings»-icon

Back to basic setting

Choose from following options:

1 Reset Sewing
2 Reset Embroidery
3 Reset All

- touch the icon, whose settings should be reset to basic setting
- touch ✔ to confirm

Delete user data

Choose from following options:

4 Sewing «Personal program»
5 Embroidery «My Designs»
6 Embroidery «Memory stick» (the Memory stick must be inserted in the sewing computer)

- touch the icon, whose data should be deleted
- touch ✔ to confirm

► the data is deleted

Exceptions:

Thread tension, brilliance, brightness, display color and speed need to be reset to basic state knowingly according to the corresponding function.

Cleaning/Update

- touch the «Cleaning/Update»-icon

1 Calibrating Buttonhole foot No. 3A
2 Updating the sewing-/embroidery computer
3 Cleaning the thread catcher
4 Lubricating sewing-/embroidery computer
5 Packing position

Calibrating Buttonhole foot No. 3A

- touch «Calibration»-icon

- attach Buttonhole foot No. 3A
- press «Start/Stop»-button
  - ► the Buttonhole foot No. 3A moves forward and backwards
  - ► the Buttonhole foot No. 3A is calibrated and the sewing computer indicates whether the calibration has been successful

The Buttonhole foot No. 3A is calibrated to this sewing computer and should only be used on this sewing computer.

Update

> **ATTENTION!**
> **Do not remove the BERNINA USB stick until there is a message which indicates the end of the update.**

- insert BERNINA USB stick with the new software version
- touch «Update»-icon

It is recommended to save the data and the settings of the sewing computer before the update is carried out.

- touch icon **1**
  - ► the data of the sewing computer is saved on the USB Stick
- touch «Update»-icon **2** to start the procedure

It is then checked if:

- ► a BERNINA USB stick is inserted
- ► there is enough free space available
- ► the correct software version is on the stick

► the data and settings are accepted

After the successful update a message appears and sewing-/embroidery computer is ready for use.

► if the update cannot be started or if there are problems during the update process, an error message appears

If the data and the settings aren't on the sewing computer anymore after the update:

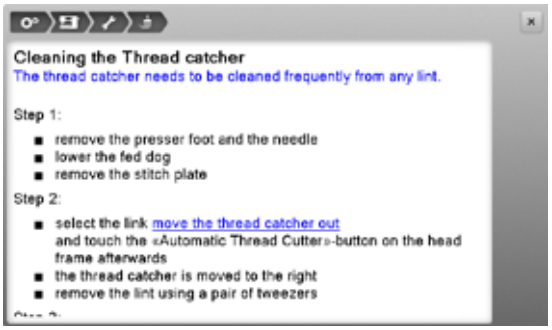
- touch icon **3**

► the data on the stick are saved on the sewing computer

Please find the latest version of Software at www.bernina.com

Cleaning the thread catcher

- touch «Cleaning»-icon


Cleaning the Thread catcher
The thread catcher needs to be cleaned frequently from any lint.
Step 1:
remove the presser foot and the needle
lower the fed dog
remove the stitch plate
Step 2:
select the link move the thread catcher out and touch the «Automatic Thread Cutter»-button on the head frame afterwards
the thread catcher is moved to the right
remove the lint using a pair of tweezers

- clean the thread catcher according to the instructions

Lubricating the sewing-/embroidery computer

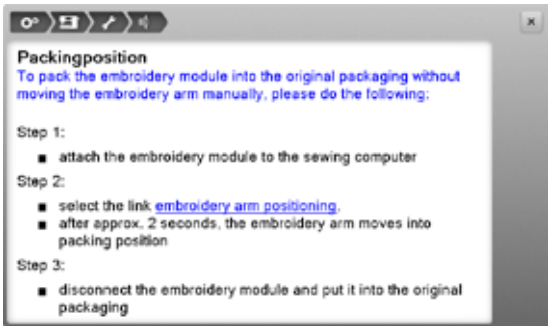
- touch «Lubricating»-icon

- oil the sewing-/embroidery computer according to the instructions and the animation

Packing position

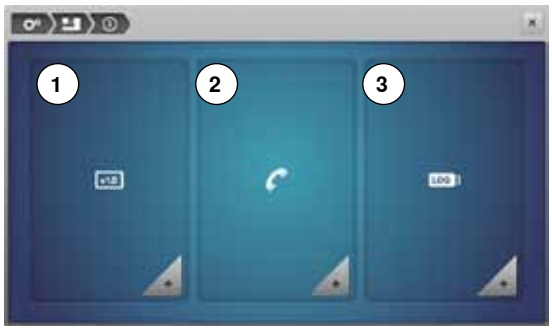
Do not move the embroidery arm of the embroidery module by hand. Follow the on-screen instructions to fit the embroidery module back into its original packaging.

- touch «Packing position»-icon


Packingposition
To pack the embroidery module into the original packaging without moving the embroidery arm manually, please do the following:
Step 1:
attach the embroidery module to the sewing computer
Step 2:
select the link embroidery arm positioning.
after approx. 2 seconds, the embroidery arm moves into packing position
Step 3:
disconnect the embroidery module and put it into the original packaging

Information

- touch «Information»-icon



1 Version
2 Dealer details
3 Service data

Version
- touch «Version»-icon

- the present version of the sewing computer and the attached embroidery module are visible
- the total number of stitches and the number of stitches sewn since the last servicing by the dealer are displayed

Dealer details
- touch «Dealer details»-icon

- touch respective icon

Following details of the BERNINA-dealer can be registered:
- store name
- address
- telephone number
- website or e-mail address

Service data
- touch «Service data»-icon

The service data of the present condition of the sewing-/embroidery computer can be saved on a memory stick and sent to the BERNINA-dealer:
- insert memory stick to sewing-/embroidery computer
- touch «LOG»-icon
- data is saved on the memory stick
- remove memory stick

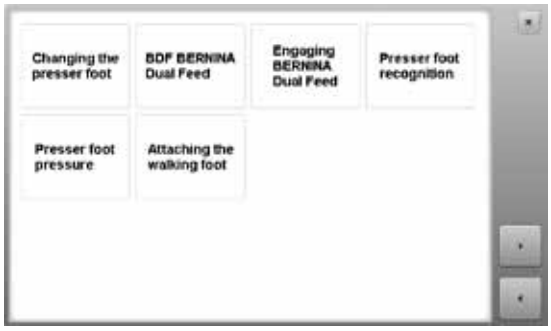
Tutorial

Overview Tutorial

The tutorial provides information and explanations about the different areas of sewing.

- touch «Tutorial»-button
- ► «Tutorial»-Display appears

1 Threading
2 Sewing techniques
3 BSR
4 Embroidery
5 Presser foot
6 Buttonholes
7 Quilting
8 Troubleshooting
9 Needle
10 Miscellaneous
11 Free Hand System (FHS)



- select desired topic, e.g. presser foot
- ► topic overview about the presser foot appears
- select desired topic, e.g. changing the presser foot

Changing the Presser Foot
This is easily done using one hand.
Step 1:
raise the needle and presser foot, power switch to «0» (off)
raise the clamping lever and remove the foot
to attach the presser foot, guide the foot onto the cone using your thumb and third finger and use your index finger to lower the clamping lever

- ► information on the desired topic is shown
- scroll through the topics using the knobs or the finger

- touch «Next»
- ► the next page appears

- touch «Back»
- ► the previous page appears

- touch «Close»-icon
- ► the «Tutorial»-Display closes
- ► the previous Display appears

Creative Consultant

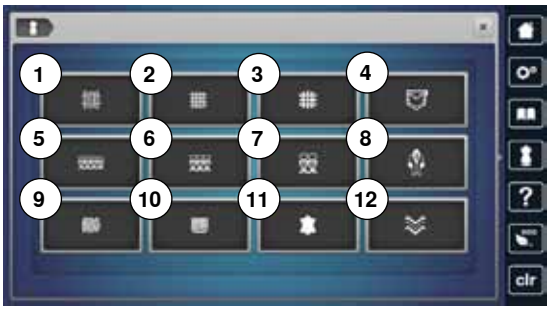
Overview Creative Consultant

The creative consultant provides information and help with various sewing techniques. After selecting the fabric and the desired sewing technique suggestions for suitable needles, presser feet etc. are displayed.

► presser foot pressure and upper thread tension are set automatically

- touch «Creative Consultant»-button

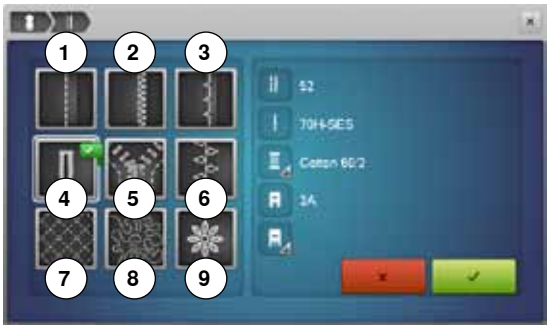
► «Creative Consultant»-Display appears



1 Light weight woven
2 Medium weight woven
3 Heavy weight woven
4 Jeans
5 Light weight knit
6 Medium weight knit
7 Heavy weight knit
8 Fur
9 Toweling
10 Fabric with a pile
11 Leather and Vinyl
12 Tulle and Laces

Overview Sewing techniques/Recommendations

- touch icon of the desired material, e.g. light weight woven



1 Seams
2 Overcasting
3 Blind hem
4 Buttonhole
5 Zipper
6 Decorative stitching
7 Machine quilting
8 Free-motion stitching
9 Appliqué

- select the desired sewing technique, e.g. buttonhole

If the desired sewing technique is not in the list, choose a similar sewing technique.

► recommendations for the selected material and the desired sewing technique are displayed
- touch ✓ to confirm

► the Display with the programmed stitch patterns appears

Leaving the Creative consultant

- touch ✕

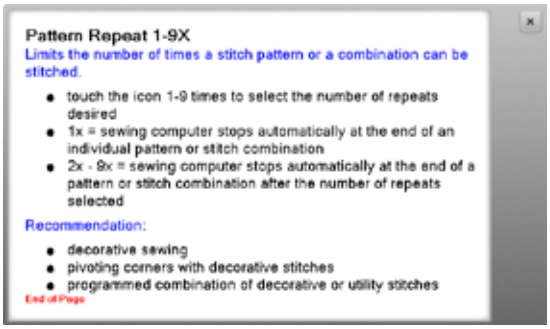
Help Program

The Help Program provides information about individual stitch patterns and function icons in the Display.

- touch «Help Program»-button
- select the desired stitch pattern or the desired function

Blind stitch
Select for most types of fabric for blind hems, shell edging on soft jerseys and fine fabrics.
Recommendation:
adjust stitch width to suit fabric thickness if necessary for medium and firm fabrics
End of Page

Stitch patterns
The Display shows the following information:
- stitch pattern name
- suitable materials
- recommendation


Pattern Repeat 1-9X
Limits the number of times a stitch pattern or a combination can be stitched.
touch the icon 1-9 times to select the number of repeats desired
1x = sewing computer stops automatically at the end of an individual pattern or stitch combination
2x - 9x = sewing computer stops automatically at the end of a pattern or stitch combination after the number of repeats selected
Recommendation:
decorative sewing
pivoting corners with decorative stitches
programmed combination of decorative or utility stitches
End of Page

Functions
The Display shows the following information:
- function name
- function explanation
- recommendation

Leaving the Help Program
- touch «Close»-icon
- the Help program is closed
- the previous Display appears

Balance

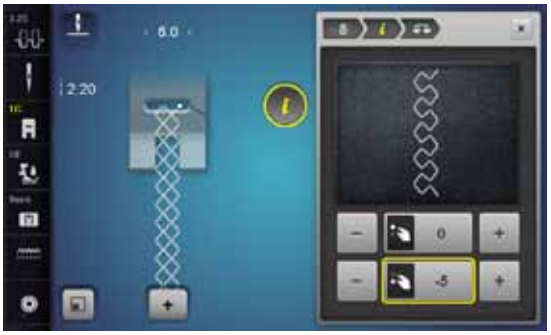
Practical and decorative stitches

The sewing computer is tested and optimally set before it leaves the BERNINA factory. Different fabrics, threads and stabilizers can affect programmed stitches so that they are not sewn out properly. These effects can be corrected with the electronic Balance so that the stitch formation can be adjusted where necessary to suit the material.

- touch «i»-icon
- touch «Balance»-icon

Practical and decorative stitches

- in the left part of the Display the stitch pattern is shown as it is set originally (programmed)
- in the right part of the Display any alterations are directly visible



Corrections

The stitch sewn on the fabric (e.g. the Honeycomb stitch) opens up and it does not look correct:

- adjust the stitch pattern length via the stitch length knob or «+»/«-»-icons, until the stitch in the right part of the Display is identical with the stitch on the fabric
- the alteration is shown with a number in the yellow-framed icon
- touch «Close»- or «i»-icon
- alterations are saved
- the previous Display appears

Sideways-motion patterns

- in the left part of the Display the stitch pattern is shown as it is originally programmed
- in the right part of the Display any alterations are directly visible

The stitch sewn on the fabric e.g. stitch pattern No. 212 is vertically and horizontally distorted.

Vertical corrections

- adjust the stitch pattern length via the stitch length knob or «+»/«-»-icons, until the stitch in the right part of the Display is identical with the stitch on the fabric

Horizontal corrections

- adjust the stitch pattern width via the stitch width knob or «+»/«-»-icons, until the stitch in the right part of the Display is identical with the stitch on the fabric

Back to basic settings

- touch «i»-icon
- touch the yellow-framed «Balance»-icon
- touch the yellow-framed icon
- ► basic setting is reset

eco description

When the work is interrupted for longer periods, the sewing-/embroidery computer can be put into energy-saving mode.

Activating eco

- touch «eco»-button
  - ► the Display gets dark
  - ► power consumption is reduced and the sewing light turns off

The energy-saving mode also acts as a child safety feature. The Display is inactive and the sewing-/embroidery computer cannot be started.

Deactivating eco

- touch «eco»-button
  - ► the sewing-/embroidery computer is ready for use

Notes

Practical stitches

Overview Practical stitches

- touch «Practical stitch»-button
- ► the practical stitches are visible in the Display
- further practical stitches are visible by scrolling

Straight stitch
For non-elastic materials; all straight stitch work, such as seams, topstitching, sewing zippers

Zig-zag
Zig-zag work such as overcasting edges, attaching elastic and lace

Vari overlock
For fine jerseys; stretch overlock seams, hems and stretch seams

Running stitch
Most types of fabric; mending, patching, reinforcing seams, etc.

Securing Program
For all materials; secures the beginning and end of seams by straight stitching

Triple straight stitch
Reinforced seams in heavy fabrics, visible seams and topstitching

Triple Zig-zag
Reinforced seams in heavy fabrics; visible hems and seams

Honeycomb stitch
For all types of jersey and smooth materials; visible seams in lingerie, clothing, linen, mending etc

Blind stitch
For most types of materials; Blind hems; shell edging effect on soft jerseys and fine material; decorative seams

Double overlock
For any knit materials; overlock seam = sewing and finishing in one step

Super stretch stitch
For highly elastic fabrics; highly elastic open seam for all types of clothing

Gathering stitch
Most types of fabric; gathering with shirring elastic. Butted seams = butting two pressed edges and sewing together, decorative stitches

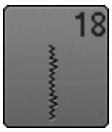
Stretch overlock
For medium weight knits, toweling and firm woven; overlock seams, flat joining seams

Tricot stitch
For jersey materials; visible hems, visible seams in lingerie, sweaters, mending jersey

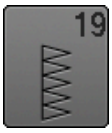
Universal stitch
For firm fabrics such as felt and leather; flat joining seams, visible seams, attaching elastic, decorative seams

Sewn-out Zig-zag
Edge finishing and reinforcing, attaching elastic, decorative seam

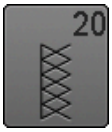
Lycra stitch
All two-way stretch fabrics; flat joining seams and hems, reinforced seaming on underwear



Stretch stitch
For highly elastic fabrics; open seam for sportswear



Reinforced overlock
For medium-weight knitware and toweling; overlock seams, flat joining seams



Knit overlock
For knit material, hand- and machine made items; overlock seam = sewing and finishing in one step

Basting stitch
Basting seams, hems, etc. temporarily

Simple darning program
Automatic darning of fine to medium weight materials

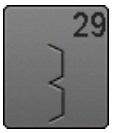
Reinforced darning program
Automatic darning of firm materials

Bartack Program
Reinforcing pocket openings, sewing belt loops etc.

Bartack Program
Reinforcing pocket openings, sewing on belt loops, securing zippers and seam ends

Large Fly stitch
For medium weight to thick materials; reinforcing pocket openings, zippers and slits

Small fly stitch
For fine to medium weight fabrics; reinforcing pocket openings, zippers and slits



Blindstitch narrow
For blind hems in fine materials

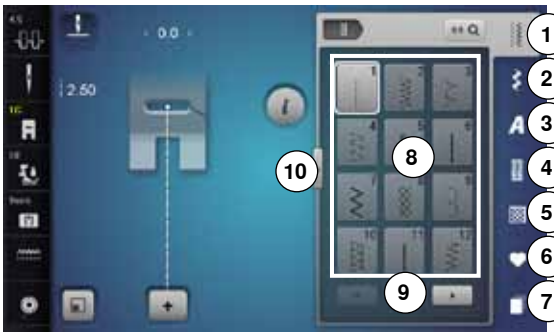
Triple Straight stitch with long stitch
Reinforced seams in heavy fabrics, visible hems and seams

Single Straight stitch
As a connecting stitch between two individual decorative stitch patterns in a combination

Three Single Straight stitches
As a connecting stitch between two individual decorative stitch patterns in a combination

Darning stitch
Use for darning in conjunction with the «Permanent Reverse» function

Selecting stitch pattern



Direct-Option 1

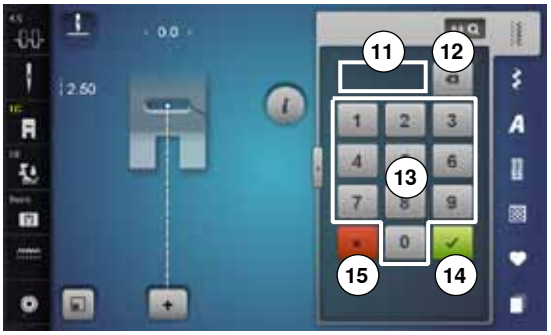
- select the desired main category **1-5**

1 Practical stitches
2 Decorative stitches
3 Alphabets
4 Buttonholes
5 Quilt stitches
6 Personal program/Memory
7 History

- ► the available stitch patterns are visible in the Display area **8**
- select desired stitch pattern
- further stitch patterns are visible by scrolling **9**

Direct-Option 2

- select the desired main category **1-5**
- touch icon **10**
- ► the stitch menu expands
- ► the number of the visible stitches is much bigger
- ► all the other stitch patterns become visible by touching the scroll icons
- ► the categories, e.g. of decorative stitches, are visible directly
- touch the icon **10** again
- ► the Display view is reset



By stitch number

- touch icon «0-9»

- ► numbers for entering are visible in the Display area **13**
- enter stitch number
- ► the entered stitch number appears in the window **11**
- touch icon **12**
- ► last digit is deleted
- touch icon **11**
- ► complete number is deleted
- touch icon **14** to confirm

Cancelling

- touch icons «0-9» or
- touch icon **15**
- ► the previous Display appears

An invalid stitch number will be indicated in icon **11** with 3 question marks.

Customizing stitch patterns individually

A stitch pattern can be individually altered according to the fabric and the application. The adjustments described here are applicable for all practical and many decorative stitches.

The personal memory is unlimited; it can hold as many stitch alterations as needed:
- Stitch length
- Stitch width
- Needle position
- Pattern extend
- Mirror images
- Long stitch function
- Thread tension
- Balance
- Pattern repeat 1-9x

Temporary Altered Stitch Memory

Any altered stitch width and stitch length is automatically saved.

Example:
- sew with an altered stitch (e.g. zig-zag)
- select and sew another stitch, e.g. straight stitch
- when selecting the individually altered zig-zag again, your alterations are still active

Return to basic settings
Individual stitch patterns can be reverted to basic settings manually.
- select the stitch width/stitch length Display and touch the yellow-framed icon in the respective Display or
- touch icon «-»/«+» or
- move the round knob in the Display using the Touchscreen pen or the finger or
- press «clr»-button
- ► any altered values of the **active** stitch return to basic setting
- switch off the sewing computer
- ► any alterations of all stitches are deleted

Personal memory permanent

The basic settings programmed by BERNINA can be altered and saved and remain active even when the sewing computer is switched off.

Altering basic settings
- select stitch pattern, e.g. zig-zag
- alter stitch width and stitch length via the knobs

Saving alterations
- touch «i»-icon
- touch «Save»-icon
- touch «Close»- or «i»-icon
- ► the alterations are saved

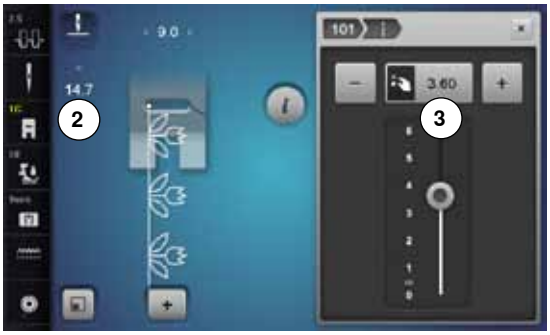
Return to basic settings
- touch «i»-icon
- touch «Basic setting»-icon
- touch «Close»- or «i»-icon
- ► the basic setting is reset

Altering stitch width and stitch length

- turn the knobs or
- touch stitch width or stitch length Display
- touch «-»/«+» icons in the respective Display or
- move the round knob in the Display using the Touchscreen pen or the finger

Can be altered while sewing.

When sewing practical or quilting stitches the actual stitch length **1** is displayed.



With other stitch patterns, including alphabets, the overall length of a stitch pattern **2** is displayed. The actual stitch length **3** is only visible when the stitch length Display is opened.

Application Examples of Practical Stitches

Straight stitch

Reverse pattern foot No. 1C/1D

Straight Stitch No. 1

After turning on the sewing computer the straight stitch will appear.
- the needle is up

Application
Suitable for all fabrics.

Adjust the stitch length to suit the fabric
E. g. use a longer stitch length (approximately 3-4 mm) with denim, a shorter length with fine fabirc (approx. 2-2.5 mm).

Adjust the stitch length to suit the thread
E. g. use a longer stitch length when using cordonnet thread for topstitching (approx. 3-5 mm).

Activate needle stop down
This prevents the fabric from shifting when you adjust or pivot the sewing project.

Triple Straight Stitch

Reverse pattern foot No. 1C/1D

Triple straight stitch No. 6

Open seam
Durable seam for firm or dense materials such as denim and corduroy.

For firm or densely woven materials
A Jeans needle and Jeans foot No. 8 will help when sewing denim or canvas.

Decorative top stitch
Lengthen stitch and use the triple straight stitch for decorative topstitching.

Triple Zig-zag

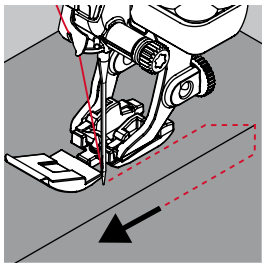
Reverse pattern foot No. 1C/1D

Triple Zig-zag No. 7

In firm materials, particularly for denim, deckchair covers, awnings.

Seams on often washed items. Finish raw edges first. Use Jeans needle for very firm materials.

Zipper



Zipper foot No. 4D

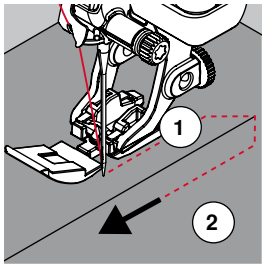
Straight stitch No. 1

Preparation

- close seam to the zipper beginning
- sew securing stitches
- baste seam closed and clean
- finish the seam allowance
- iron the seam
- open the zipper
- baste the zipper: baste or pin zipper in place so that fabric folded edges meet over the center of the zipper

Sewing in the zipper

- open zipper a little
- move needle position to the right
- start sewing from top left
- position the foot so the needle stitches along the edge of the zipper coils
- stop in front of the pull (needle position down)
- raise the presser foot
- close the zipper again
- continue to sew, stop in front of the base of the zipper, needle position down
- raise the presser foot
- turn the sewing project
- sew across the seam, stop with needle position down
- raise the presser foot
- turn sewing project again
- sew the second side from bottom to top



Variation: Sew both sides of zipper from bottom to top
Suitable for all fabrics with nap or grain (e.g. velvet).

- prepare zipper as described above
- start sewing in the center of the seam at the end of the zipper, needle position on the right
- sew diagonal along the edge of the zipper coils
- first side **1** sew from bottom to top
- move needle position to the left
- second side **2** sew in the same way from bottom to top

Sew around the zipper pull

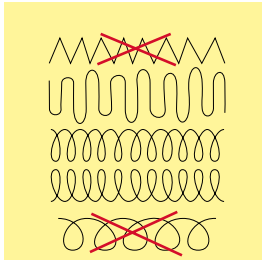
– sew up to about 5 cm away from the zipper pull
– stop with the needle down, raise the presser foot, open the zipper, finsih sewing (use Free Hand System)

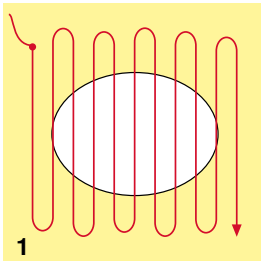
Starting to sew

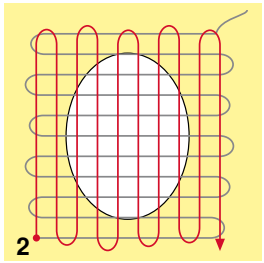
– hold thread firmly when starting to sew = pull fabric slightly to the back (fewer stitches) or
– sew about 1-2 cm reverse first, and continue to sew as usual

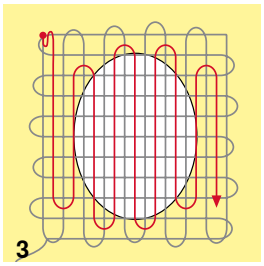
Zipper or fabric is thick or densely woven
For even stitch formation use a 90-100 needle.

Manual darning









Darning foot No. 9 (optional accessory)

Straight stitch No. 1

Holes or worn areas
«Replacing» threads along the lengthside and crosswise in every material.

Preparation
- lower the feed dog
- attach the Slide-on table
- hoop the fabric into the round embroidery hoop (optional accessory)
- the darning area stays evenly taut and cannot be distorted

Sewing
– work from the left to the right, guide the fabric evenly without using pressure
– move in curves when changing direction on top and on bottom. Avoid points as this can cause holes and thread breakage
– work the rows in irregular lengths. The thread is better spread over the fabric

1 Sew the first rows to cover the hole
- first rows just beyond the worn area and not too close together
- work the rows in irregular lengths
- turn work by a quarter turn -90

2 Sew over the first rows
- first rows not too close
- turn fabric by half turn -180°

3 Finish darning the hole
- sew another loose row

Poor stitch formation
– if the thread is lying on top, slow down the fabric movement
– if there are knots on the wrong side of the fabric, move the fabric more quickly

Thread breaks
Guide the fabric more consistently.

Automatic Darning

Reverse pattern foot No. 1C
Buttonhole foot No. 3A

Simple darning program No. 22

Quick darning of holes or worn areas
Replaces threads along the lengthwise grain in all materials.

Preparation
- hoop light weight materials in the round embroidery hoop (optional accessory)
- ► the darning area stays evenly taut and cannot be distorted

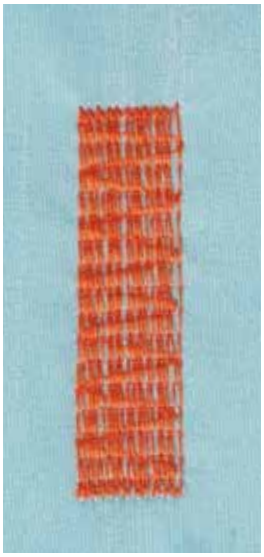
Darning with Reverse pattern foot No. 1C
Start sewing top left.
- sew first row
- stop the sewing computer
- press «Quick reverse»-button
- ► the length is programmed
- finish sewing the darning program
- ► the sewing computer stops automatically
- press «clr»-button
- ► the programmed settings are cleared

Darning with the buttonhole foot No. 3A
– for darning worn and damaged areas
– darning length max. 3 cm
– same procedure as with Reverse pattern foot No. 1C

Reinforcement
Use fine material or (adhesive) interlining as a backing.

If the darning becomes distorted
Correct with the Balance function (more about Balance-Function see page **60**).

Reinforced darning, automatic



Buttonhole foot No. 3A

Reinforced darning program No. 23

Quick darning of holes or worn areas
Replaces threads along the lengthwise grain in all materials.

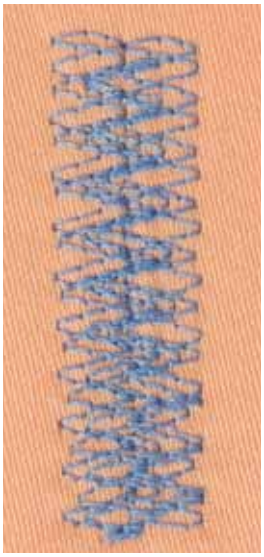
Preparation
- hoop light weight materials in the round embroidery hoop (optional accessory)
- ► the darning area stays evenly taut and cannot be distorted

Darning with the Buttonhole foot No. 3A
Start sewing top left.
- sew first row
- stop sewing computer
- press «Quick reverse»-button
- ► the length is programmed
- finish sewing the darning program
- ► the sewing computer stops automatically
- press «clr»-button
- ► the programmed settings are cleared

If the darning does not cover the whole worn or damaged area
Reposition the work under the foot to continue covering the worn or damaged area. Begin sewing; the program will repeat as often as desired (the length is saved).

Via «Direct entry length» (see page **38**) a darning length up to 30 mm can be programmed.

Reinforced Darning program



Reverse pattern foot No. 1C

Darning program No. 34

The Darning program No. 34 is particularly useful for mending heavy weight or durable garments, such as jeans and overalls.

Finishing Edges

Reverse pattern foot No. 1C

Zig-zag No. 2

– for all fabrics
– for finishing raw edges
– elastic seams
– decorative sewing

Finishing edges
- guide edge of fabric into the center of the presser foot
- do not select too wide a stitch
- do not select too long a stitch
- needle goes into fabric on one side and over the edge into the air on the other side

– the edge of the fabric should lie flat and not roll
– use darning thread for fine materials

Satin stitch
– dense, short zig-zag (stitch length 0.5-0.7 mm)
– use satin stitch for appliqué, embroidery, etc

As a variation the satin stitch No. 1354 can be used.

Double overlock

Reverse pattern foot No. 1C
Overlock foot No. 2A

Double overlock No. 10

Closed seam
Double overlock seam in loose knits and cross seams in knits and jerseys.

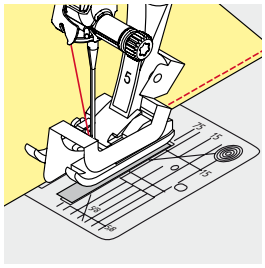
Knits and jersey
– use a new Jersey needle to prevent damaging the loops
– if necessary loosen presser foot pressure

Sewing stretch materials
If necessary use a stretch needle (130/705H-S).

Topstitching edges

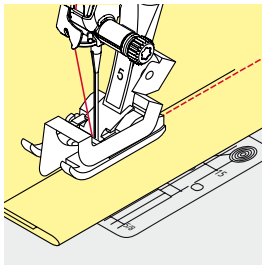
Blindstitch foot No. 5
Reverse pattern foot No. 1C
Edge stitch foot No. 10/10C/10D (optional accessory)

Straight stitch No. 1



Narrow edgestitching

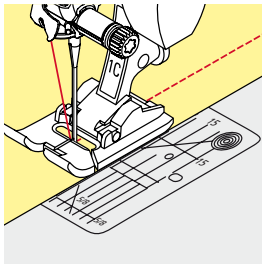
Outer edges
- place edge of fold left against the guide on the blindstitch foot
- select the needle position left in the desired distance to the edge



Hem edges
- place edge of fold (inside upper edge of hem) right against the guide on the blindstitch foot
- select needle position to the right to sew along the upper edge

Blindstitch foot No. 5
Needle position left or far right.

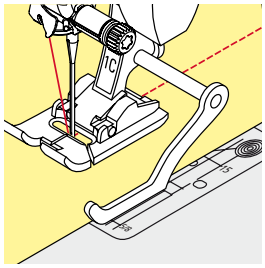
Reverse pattern foot No. 1C and Edge stitch foot No. 10/10C/10D (optional accessory)
Any needle position possible.



Wide edgestitching

Material guidance
Presser foot as guide:
- guide the folded edge along the edge of the presser foot

Stitch plate as guide:
- guide the folded edge along the marks on the stitch plate (1 to 2.5 cm)



Seam guide as guide:
Presser foot
- loosen the screw on the back of the presser foot
- insert the seam guide into the hole of the presser foot
- adjust width as desired
- tighten the screw
- guide the folded edge along the seam guide

To sew parallel wider lines, guide the seam guide along a previously sewn line of stitches.

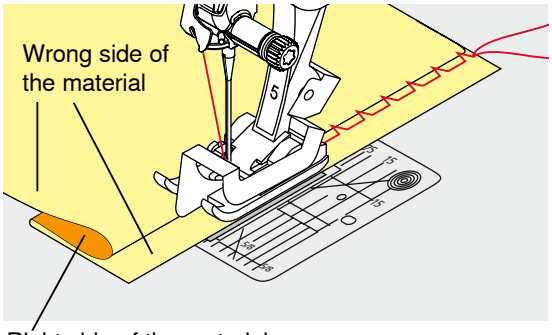
Blind Hems

Blindstitch foot No. 5

Blindstitch No. 9

For invisible hems in medium to heavy weight cotton, wool and blended materials.

Preparation
- finish the raw edges
- fold the hem and baste or pin in place



Right side of the material

- fold the fabric back over the right side of the fabric to expose the finished lower edge
- place under presser foot and
- move the folded edge against the metal guide on the presser foot

Sewing
The needle should just pierce the edge of the fold, as when hand blind-stitching.
- after sewing about 10 cm, check both sides of fabric and adjust width again if necessary

Fine stitch width adjustment
Guide the folded edge evenly along the metal guide on the foot = even depth.

Visible Hem

Reverse pattern foot No. 1C/1D

Tricot stitch No. 14

For visible, elastic hems in jersey, cotton, synthetic and mixed fibers.

Preparation
- iron the hem, baste if necessary
- reduce the presser foot pressure if necessary

Sewing
- sew the hem at preferred depth on the right side
- trim excess fabric from the wrong side

Securing Program

Reverse pattern foot No. 1C

Securing Program No. 5

– for all fabrics
– secures beginning and end of seam

Sewing long seams with straight stitch
Even securing by defined stitch count.

Sewing start
- press the foot control
- ► the sewing computer secures automatically when beginning to sew (5 stitches forward, 5 stitches in reverse)
- sew seam with straight stitches in desired length

Sewing end
- press «Quick reverse»-button
- ► the sewing computer secures seam automatically (5 stitches in reverse, 5 stitches forward)
- ► the sewing computer stops automatically at the end of the securing program

Basting Stitch

Reverse pattern foot No. 1C/1D

Basting stitch No. 21

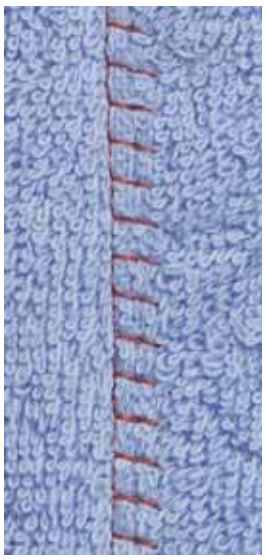
– straight stitch, sews out every fourth stitch, i.e. longest stitch possible is 24 mm, when the stitch length is set at 6 mm. Recommended stitch length 3.5-5 mm
– for work which requires a very long stitch
– basting seams, hems, Quilts etc.
– temporary joining
– easy to remove

Preparation
- pin work at a right angle to basting direction
- ► to prevent the layers from slipping

Securing/fixing the thread
Sew 3-4 securing stitches at the begin and at the end.

Thread
Use a fine darning thread for basting as it is easier to remove.

Flat joining seam



TTTTT

Reverse pattern foot No. 1C

Stretch overlock No. 13

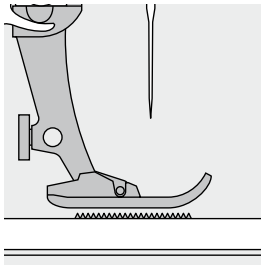
Ideal for fluffy or thick materials such as terry cloth, felt and leather etc.

Sewing

- overlap fabric edges
- sew along the fabric edge
- the needle should sew over the edge of the top layer on the right side

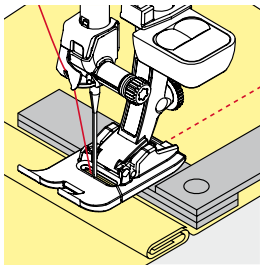
► very flat durable seam

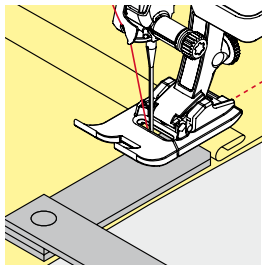
Height Compensation of uneven layers



The feed dog works accurately when the foot is level.

If the presser foot is at an angle when sewing over a thick seam, the feed dog cannot grip. The fabric may jam.



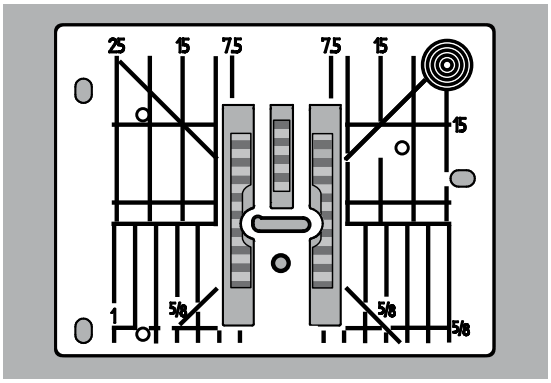


To solve this problem, place one, two or three compensating plates as required behind the needle under the presser foot to level it.

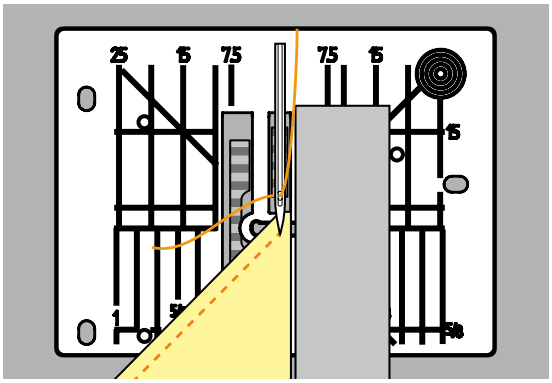
To correct the height in front of the foot, place one or more plates under the foot close to the needle. Sew until the foot is level again and remove the plates.

Needle stop down.

Sewing Corners



Due to the width of the stitch plate hole the outer feed dog rows are relatively far apart.



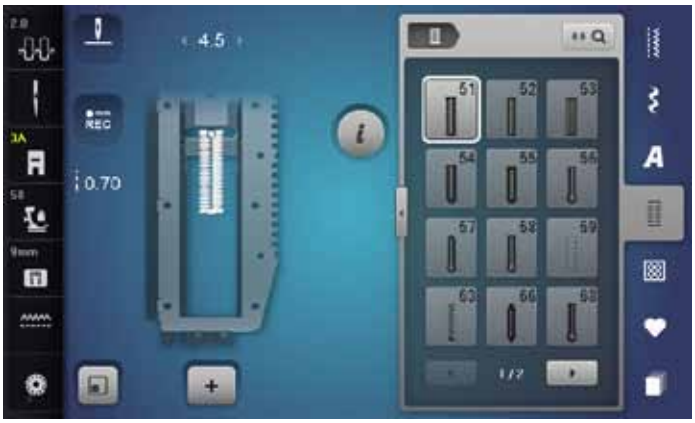
When sewing corners only a small section of the fabric is actually on the feed dog. Therefore it cannot grip the fabric well.
Place one or more plates of the height compensation tool parallel to the presser foot close to the edge of the fabric.

- the fabric is fed evenly

Needle stop down.

Buttonholes

Overview Buttonholes



Buttonholes are not only practical closures, they can also be used as a decorative effect. All buttonholes can be programmed and sewn in different ways.

- touch «Buttonhole»-button
- scroll to see more buttonholes

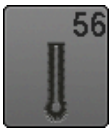
Standard buttonhole
For light to medium weight fabrics; blouses, shirts, trousers, bedlinens, etc.

Standard buttonhole narrow
For light- to medium weight fabrics; blouses, dresses, children's and baby clothes, crafts

Stretch buttonhole
For any highly elastic jersey made from cotton, wool, silk and synthetic fibers

Round buttonhole with normal bartack
For medium- to heavy weight materials: dresses, jackets, coats, rainwear

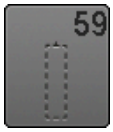
Round Buttonhole with horizontal bartack
For medium- to heavy weight fabrics of all types: dresses, jackets, coats, rainwear



Keyhole buttonhole
For heavy weight, non-stretch materials; jackets, coats, leisure wear

Keyhole buttonhole with pointed bartack
For firmer, non-stretch materials: jackets, coats, leisure wear

Keyhole buttonhole with horizontal bartack
For firmer, non-elastic materials; jackets, coats, leisure wear



Straight stitch buttonhole
Program for staystitching buttonholes, for pocket openings, reinforcing buttonholes; especially for buttonholes in leather and imitation leather

Heirloom buttonhole
For light- to medium weight woven fabrics; blouses, dresses, leisure wear, bed linen

Buttonhole with double Pointed Bartack, narrow
Decorative buttonhole for medium weight materials; blouses, dresses, jackets

Decorative Keyhole buttonhole with horizontal bartack
For firmer, non-stretch materials: jackets, coats, leisure wear

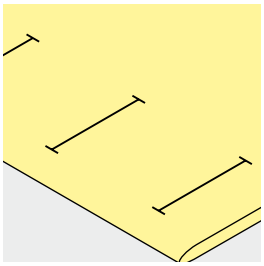
Decorative buttonhole with double pointed bartack
For decorative buttonholes in firmer, non-elastic fabrics

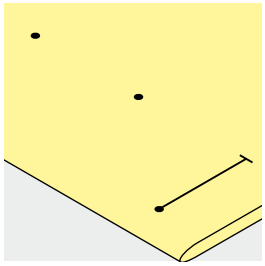
Button sew-on program
For buttons with 2 and 4 holes.

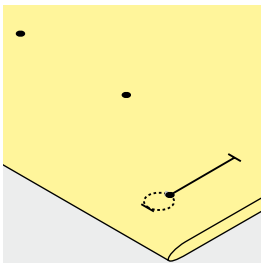
Eyelet with small zig-zag
Openings for cords and narrow ribbons, decorative work

Straight-stitch eyelet
Openings for cords and narrow ribbons, decorative work

Important information







Marking the length of manual buttonholes
- mark the buttonhole length in the desired position
- use Buttonhole foot No. 3C (optional accessory)

Marking the length of automatic buttonholes
- mark the length of just one buttonhole
  - after sewing the first buttonhole the length is programmed
- mark only the beginning of all subsequent buttonholes
- use automatic Buttonhole foot No. 3A

Marking the length of keyhole buttonholes
- mark the bead length only
  - the correct eye length will be added when the buttonhole is sewn
  - after sewing the first buttonhole the length is programmed
- mark only the beginning of all subsequent buttonholes
- use automatic Buttonhole foot No. 3A

Test sample
- always sew a test sample on the same fabric and
- stabilizer to be used for the project
- select the buttonhole type you intend to use
- sew the buttonhole in the same direction on the fabric (horizontal or vertical, with or against the grain)
- cut the buttonhole open
- push the button through the buttonhole
- adjust the buttonhole length if necessary

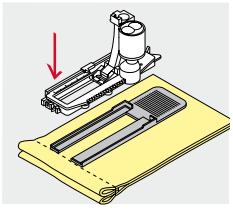
Adjusting the bead width
- alter the stitch width

Altering the stitch length

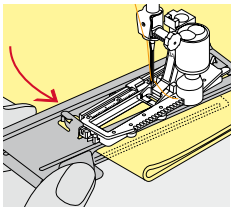
Stitch length adjustments affect both buttonhole beads.
- spacing between the stitches

After stitch length adjustment:
- re-program the buttonhole

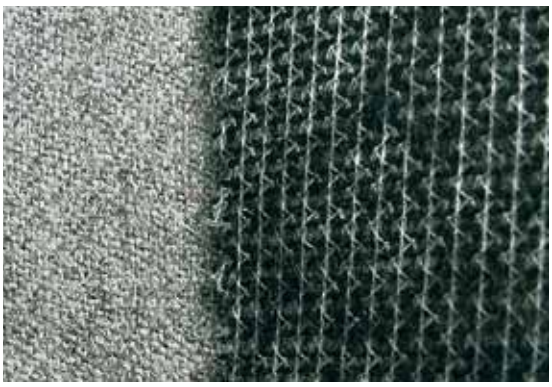
If a buttonhole is to be sewn at right angles to the seam, we recommend the use of the height compensation plates (optional accessory). Place the plates from the back between fabric and bottom of slide foot up to the thick part of the fabric and push to front.



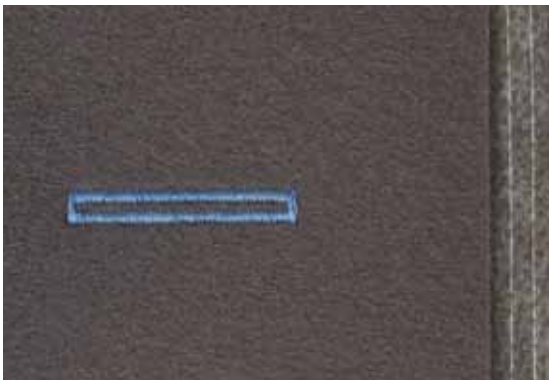
When sewing a buttonhole in difficult materials, we recommend to using the Compensation plate for buttonholes (optional accessory). It can be used along with Buttonhole foot No. 3A.



Stabilizer



– interfacing provides durability and stability to the buttonhole
– choose the interfacing according to the material being used

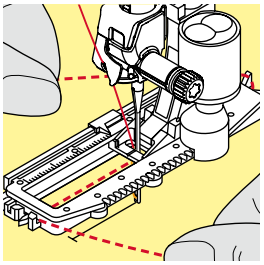


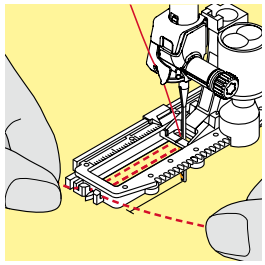
– when using thick or fluffy materials an embroidery stabilizer can be used
► therefore the fabric feeds better

Cord

In general
- – cords reinforce buttonholes and enhance their appearance
- – mainly suitable for buttonhole No. 51
- • position the work accordingly

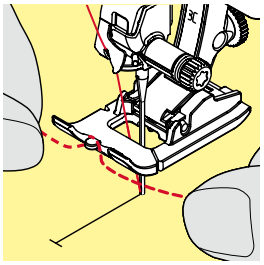
Ideal cords
- – Perle cotton No. 8
- – strong hand-sewing thread
- – fine crochet yarn

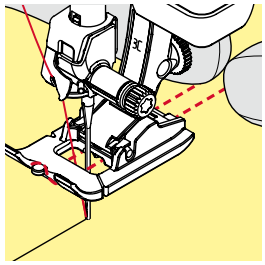




Cord with the automatic Buttonhole foot No. 3A
- • raise the Buttonhole foot No. 3A
- • insert the needle at the beginning of the buttonhole
- • guide the cord on the right side under the Buttonhole foot No. 3A
- • hook the cord over the pin at the back of the Buttonhole foot No. 3A
- • pull the cord on the left side under the Buttonhole foot No. 3A to the front
- • pull the cord ends into the slits
- • lower the Buttonhole foot No. 3A

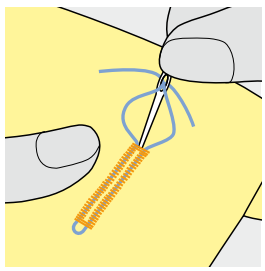
Sewing
- • sew the buttonhole in the usual manner
- • do **not** hold the cord
- ► the buttonhole will sew over the cord, covering it





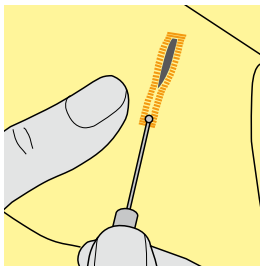
Cord with the Buttonhole foot No. 3C (optional accessory)
- • raise the buttonhole foot
- • insert the needle at the beginning of the buttonhole
- • hook cord over the pin in the middle of the buttonhole foot (at the front)
- • pull both cord ends under the buttonhole foot sole to the back and
- • place both ends of the cord in the grooves on the sole
- • lower the buttonhole foot

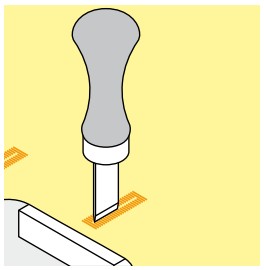
Sewing
- • sew the buttonhole in the usual manner
- • do **not** hold the cord
- ► the buttonhole will sew over the cord, covering it



Fixing the cord
- • pull the cord through the buttonhole until the loop disappears into the end of it
- • pull the ends of the cord through to wrong side of the fabric, using a hand stitching-needle
- • knot or secure with stitches

Before cutting the buttonhole open
Place a pin in each end of the buttonhole to avoid accidental cutting into ends of buttonhole.





Cutting buttonholes open with the seam ripper
- • cut the buttonhole from the ends to the middle

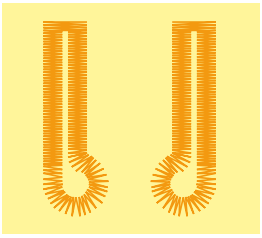
Cutting open buttonholes with the buttonhole cutter (optional accessory)
- • place the fabric on the wood
- • place the cutter in the centre of the buttonhole
- • press down on the cutter with your hand

Altering the balance

- touch «i»-icon
- touch «Balance»-icon

Balance with direct entry length buttonholes
The balance alterations have the same effect on both beads.

Balance with direct entry length keyhole or round buttonholes
The balance alterations have the same effect on both beads.
The keyhole or eye is balanced as follows:
- sew straight stitches forward until
- ► the sewing computer changes to the keyhole or eye, then
- stop the sewing computer
- touch «Balance»-icon
- turn the stitch length-knob until the picture in the right portion of the Display is identical with the sewn buttonhole

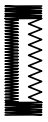


A B

The keyhole is distorted to the right **A**:
- turn the stitch length-knob to the left

The keyhole is distorted to the left **B**:
- turn the stitch length-knob to the right
- touch «i»- or «Close»-icon and finish the buttonhole

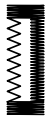
Balance for manual keyhole or round buttonhole
Any balance alteration affects both beads differently:



C

Left bead too dense **C**:
- turn the stitch length-knob to the left
- ► the left bead is elongated, the right bead is shortened

Left bead too wide **D**:
- turn the stitch length-knob to the right
- ► the left bead is shortened, the right bead is elongated



D

The keyhole or eye is balanced as follows:
The keyhole is distorted to the right **A**:
- turn the stitch length-knob to the right

The keyhole is distorted to the left **B**:
- turn the stitch length-knob to the left

Balance for manual standard buttonhole
The balance alterations have the same effect on both beads.

Balance for stitch counter buttonhole
The balance has a different effect on both beads (see picture of the manual buttonhole).
- re-program the buttonhole after each alteration in balance

Clear Balance
- touch the yellow-framed icon in the special Balance-Display or
- press «clr»-button
- ► «clr» also deletes the programmed buttonhole!

Recommendation
Test-sewing of the buttonhole on the original material.

In all direct entry length and manual buttonholes each individual buttonhole sequence can be balanced separately.
In stitch counter buttonholes the balance affects both beads differently (left and right): When altering the bead the keyhole or eye are automatically altered accordingly.

Programming Buttonholes

Standard and stretch buttonhole with auto-length, automatically

Buttonhole foot No. 3A

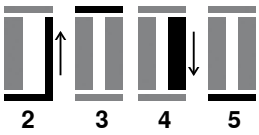
The lens on the automatic Buttonhole foot No. 3A automatically registers the length of the buttonhole for exact duplication.
For buttonholes of 4-31 mm, depending on the buttonhole type.

The slide foot must lie perfectly flat on the fabric! If the slide foot rests on a seam allowance, the length cannot be measured accurately.

Automatic standard and stretch buttonhole No. 51, 52, 53

Programming Buttonholes

1
- sew first bead forward
- stop the sewing computer
- press «Quick reverse»-button
- ► «auto» and the programmed length (in mm) appears in the Display
- ► the buttonhole length is programmed



The sewing computer sews the following automatically:
2 the straight stitches in reverse
3 the first bartack
4 the second bead forwards
5 the second bartack and securing stitches
- ► the sewing computer stops and returns automatically to buttonhole begin

Auto buttonhole
- ► all subsequent buttonholes will be sewn to exactly the same length (no need to press «Quick reverse»-button)
- the programmed buttonholes can be saved in the long-term memory (see page **92**)
- press «clr»-button
- ► the programmed settings are cleared

Exact duplication
The auto function ensures that each buttonhole will be exactly the same length as the previous one.

Sewing speed
– sew at moderate speed for best results
– sew all buttonholes at the same speed for a consistent bead density

Automatic with Direct Entry Length

Buttonhole foot No. 3A

Programming the buttonhole length
Buttonholes can be sewn to a specific length with the Buttonhole foot No. 3A.
Buttonhole length = cutting length in mm.

- select the desired buttonhole
- touch «i»-icon
- touch «Direct entry length»-icon

Determining the buttonhole length
- enter the buttonhole length using the multifunction knobs (stitch width or stitch length knob)
- ► the length entered appears below the buttonhole
- ► the number above the button is the exact button size
- touch small «i»-icon in the upper part of the Display
- ► the Function Overview appears
- ► the length entered is saved
- ► «auto» and the programmed length is shown on the left side in the Display

Back to the Buttonhole menu
- touch «i»- or «Close»-icon
- ► the buttonhole Display appears

Automatic with Button measuring

Buttonhole foot No. 3A

Determining button size
The sewing computer calculates the length of the buttonhole directly from the diameter of the button. 2 mm are automatically added for the button thickness.
- hold the button on the yellow circle in the right portion of the Display
- adjust the yellow cirlce to the size of the button using the stitch width or the stitch length knob
- ► the button size is indicated above the button between the two lines (i.e. 14 mm)
- remove the button from the Display
- touch «i»- or «Close»-icon
- ► the length entered is saved
- ► «auto» and the programmed length is shown on the left side in the Display

Corrections for thick buttons
Match buttonhole length to buttonhole thickness (raised buttons, etc.) e.g. buttonhole length + 1 cm (incl. 2 mm) if button height is 1cm.
The button slides easily through the buttonhole.

Back to buttonhole begin
- press «Pattern begin»-button
- ► the sewing computer sets the program to the start of the buttonhole again

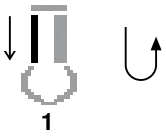
Deleting saved buttonholes
- press the «clr»-button or touch «recording»
- ► «auto» goes off and «REC» appears
- a new buttonhole length can be programmed

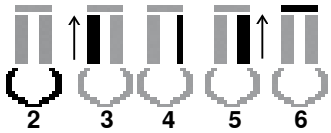
Automatic round and keyhole buttonhole

Buttonhole foot No. 3A

The slide foot must lie perfectly flat on the fabric! If the slide foot rests on a seam allowance, the length cannot be measured accurately.

Automatic Round and Keyhole buttonhole No. 54-58, 68





Programming buttonholes

1
- sew straight stitches forward
- stop the sewing computer
- press «Quick reverse»-button
- ► «auto» and the programmed length (in mm) appears in the Display
- ► the buttonhole length is programmed

The sewing computer sews the following automatically:

2 the eye
3 the first bead in reverse
4 the straight stitches forward
5 the second bead in reverse
6 the bartack and securing stitches
- ► the sewing computer stops and returns automatically to buttonhole begin

Auto buttonhole

- ► all subsequent buttonholes will be sewn to exactly the same length (no need to press the «Quick reverse»-button)
- the programmed buttonholes can be saved in the long-term memory (see page **92**)
- press «clr»-button
- ► the programmed settings are cleared

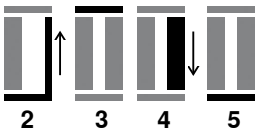
Exact duplication
The auto function ensures that each buttonhole will be exactly the same length as the previous one.

Double sewn keyhole buttonholes
- keyhole buttonholes can be sewn twice on thick fabrics - use a longer stitch length for the first run
- after sewing the first buttonhole, do not move the work
- reduce the stitch length manually and sew the buttonhole again

Buttonhole with double pointed bartack No. 66 and decorative buttonhole with double pointed bartack No. 69

Programming the buttonhole

1
- sew the first bead forward
- stop the sewing computer
- press «Quick reverse»-button
- ► «auto» and the programmed length (in mm) appears in the Display
- ► the buttonhole length is programmed



The sewing computer sews autmatically:

2 straight stitches in reverse
3 the upper pointed bartack/bartack
4 the second bead forward
5 the lower pointed bartack/bartack and the securing stitches
- ► the sewing computer stops and returns automatically to buttonhole begin

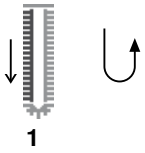
Auto buttonhole

- ► all subsequent buttonholes will be sewn to exactly the same length (no need to press «Quick reverse»-button)
- the programmed buttonholes can be saved in the long-term memory (see page **92**)
- press the «clr»-button
- ► the programmed settings are cleared

Heirloom Buttonhole

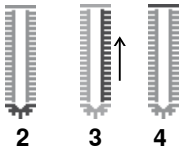
Buttonhole foot No. 3A

Heirloom buttonhole No. 63



Programming buttonholes

1
- sew first bead forward
- stop the sewing computer
- press «Quick reverse»-button
- ► «auto» and the programmed length (in mm) appears in the Display
- ► the buttonhole length is programmed



The sewing computer sews the following automatically:

2 the round part

3 the second bead in reverse

4 the bartack and the securing stitches
- ► the sewing computer stops and returns automatically to buttonhole begin

Auto buttonhole
- ► all subsequent buttonholes will be sewn to exactly the same length (no need to press «Quick reverse»-button)
- the programmed buttonholes can be saved in the long-term memory (see page **92**)
- press «clr»-button
- ► the programmed settings are cleared

Stitch Counter Buttonhole

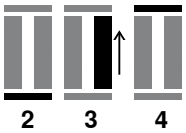
- touch «i»-icon
- touch «REC 123»-icon

Buttonhole foot No. 3C (optional accessory)

All buttonhole types

Programming buttonholes

1
- sew first bead forward
- stop the sewing computer
- press «Quick reverse»-button



2 sew lower bartack and

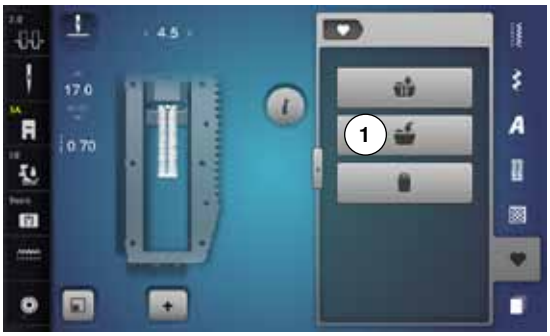
3 sew second bead in reverse
- stop the sewing at the first stitch
- press «Quick reverse»-button

4 the sewing computer sews the upper bartack, the securing stitches and stops automatically
- ► «auto» appear in the Display
- ► the buttonhole length is programmed
- ► each subsequent buttonhole the programmed number of stitches are sewn

– the first bead (left) is sewn forwards, the second bead (right) is sewn in reverse

Buttonhole in Long Term Memory

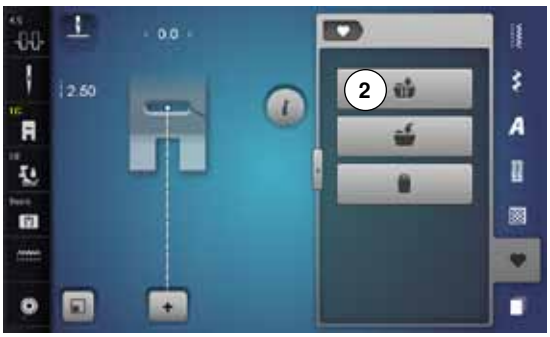
- touch «Memory»-button



Programming the buttonhole

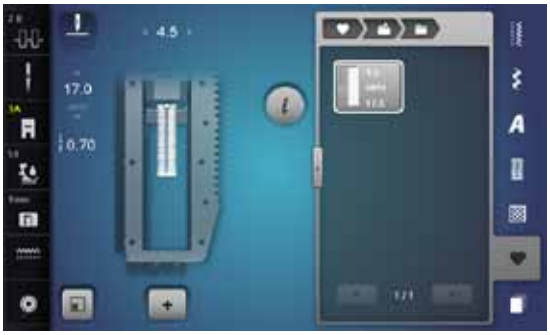
- touch «Save»-icon **1**
- ► a Display with four folders appears
- select the folder where the buttonhole is to be saved, e.g. 1
- touch the yellow-framed «Save»-icon
- ► the buttonhole is now saved in long term memory

- touch «Memory»-button



Selecting a saved buttonhole

- touch folder **2**
- ► a Display with four folders appears
- select the folder where the buttonhole is to be select, e.g. 1

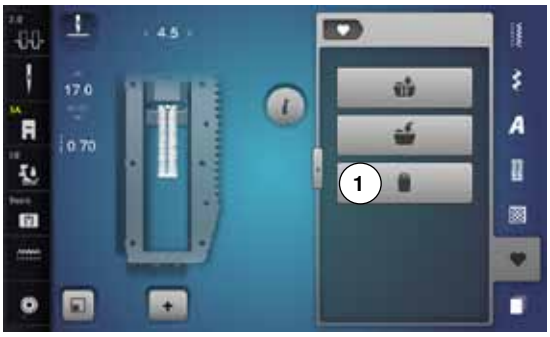


- select buttonhole

Altering saved buttonhole

- touch «i»-icon
- touch «Direct entry length»-icon
- alter the length of the saved buttonhole
- touch «i»- or «Close»-icon
- reprogram the buttonhole as described

- touch «Memory»-button



Deleting a saved buttonhole

- touch «Delete»-icon **1**
- ► a Display with four folders appears
- ► select the folder where the buttonhole is to be deleted, e.g. 1
- select the desired buttonhole
- touch ✔ to confirm
- ► the buttonhole is deleted

7- or 5-step Buttonhole, manually

Buttonhole foot No. 3C (optional accessory)

- select the desired buttonhole
- touch «i»-icon
- touch «man»-icon

The length of the beads is manually determinded when sewing. Bartack, eye and securing stitches are pre-programmed. The individual steps can also be selected by scrolling, by using the arrow icons, by direct selection or by touching the «Quick reverse»-button.

Sewing 7-Step buttonhole

- ► step **1** is activated for buttonhole begin
- ► step **2** is activated when beginning to sew
- sew first bead
- stop the sewing computer at desired length of the bead or to the end of the length marking
- select step **3**
- ► sewing computer sews straight stitches in reverse
- stop sewing computer at the height of the first stitch (buttonhole begin)
- select step **4**
- ► the sewing computer sews top bartack and stops automatically
- select step **5**
- ► the sewing computer sews the second bead
- stop the sewing computer at the height of the first bead
- select step **6**
- ► the sewing computer sews bottom bartack and stops automatically
- select step **7**
- ► sewing computer secures stitches and stops automatically

Sewing 5-Step buttonhole

- ► step **1** is activated for buttonhole begin
- ► step **2** is activated when beginning to sew
- sew first bead
- stop the sewing computer at desired length of the bead or to the end of the length marking
- select step **3**
- ► the sewing computer sews the eye or the keyhole and stops automatically
- select step **4**
- ► the sewing computer sews the second bead in reverse
- stop sewing computer at the height of the first stitch (buttonhole begin)
- select step **5**
- ► sewing computer sews the top bartack and secures stitches automatically

Straight stitch buttonhole No. 59

– The same programming procedure as with the auto buttonhole program (see page **87**)

– Buttonholes No. 59 with the straight stitch is recommended for soft, loosely woven fabrics and for buttonholes that will receive excessive wear. The straight stitch buttonholes also reinforce, vinyl and felt

Button sew-on program

- touch «Buttonhole«-button
- touch «Button sew-on program»-icon

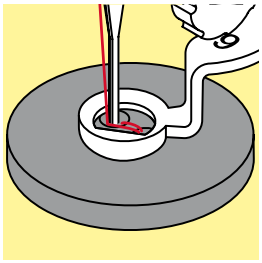
Darning foot No. 9 (optional accessory)
Button sew-on foot No. 18 (optional accessory)

Button sew-on program No. 60

For buttons with 2 and 4 holes.

Preparation
- lower the feed dog

Sewing on Buttons
Buttons sewn on for decorative purposes only are stitched without a «thread shank». «Shank length» = distance between button and fabric; can be adjusted with Button sew-on foot No. 18.



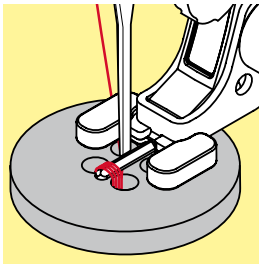
Sewing on buttons with Darning foot No. 9 (optional accessory)
- select button sew-on program
- check distances between holes with the handwheel
- adjust stitch width if necessary
- hold the threads when starting to sew
- sew the first securing stitches into the left hole
- sew program
- ► sewing computer stops automatically when program is completed and is ready for the next button

Beginning and ending threads
The threads are secured and can be trimmed.

For increased stability
- pull on both bobbin threads until the ends of the upper threads are visible on the wrong side
- pull the threads out and knot the ends additionally
- trim the threads

Sewing on buttons with foot No. 18 (optional accessory)
- set the shank length with the screw on the foot
- select button sewing-on program and continue as with foot No. 9 (optional accessory)

Sewing on a 4-hole button
- sew the front holes first
- carefully move the button forward
- sew the back holes with the same program



For a increased stability the button sew-on program can be sewn twice.

Eyelet Program

- touch «Buttonhole«-button
- touch «Eyelet program»-icon

Reverse pattern foot No. 1C
Open embroidery foot No. 20C

Eyelet with small zig-zag No. 61
Straight stitch eyelet No. 62

Sewing eyelets

- select eyelet
- position fabric under the presser foot and sew eyelet program
- ► the sewing computer stops automatically and is at the beginning of the eyelet program again

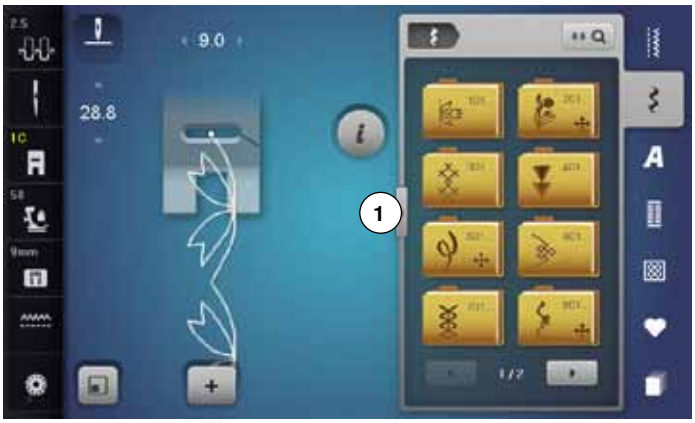
Punching eyelets

- use an awl, punch pliers or a hole punch to open the eyelet

Adjust the roundness of the eyelet if necessary with balance.
For increased stability sew the eyelet twice.

Decorative Stitches

Overview Decorative Stitches



- press «Decorative stitch»-button
- ► Display shows an overview of the categories
- select the desired category
- ► the desired category is activated
- select desired stitch pattern

- touch icon **1**
- ► the Display changes to the big overview

Application

Depending on the type of material, simple or more complex decorative stitches should be selected to best suit the material.

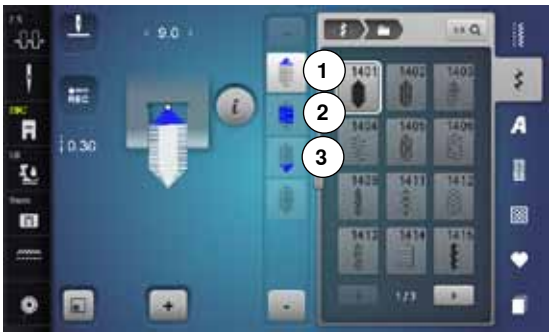
– decorative stitches which are programmed with simple straight stitches, are particularly appropriate for light weight materials, e.g. decorative stitch No. 101
– decorative stitches which are programmed with triple straight stitches or with a few satin stitches are particularly appropriate for medium weight materials, e.g. decorative stitch No. 107
– decorative stitches which are programmed with satin stitches are particularly appropriate for medium weight materials, e.g. decorative stitch No. 401

Categories
Cat. 100 = Florals
Cat. 200 = Florals Sideways Motion
Cat. 300 = Cross stitches
Cat. 400 = Satin stitches
Cat. 500 = Satin stitches Sideways Motion
Cat. 600 = Ornamental stitches
Cat. 700 = Heirloom stitches
Cat. 800 = Heirloom stitches Sideways Motion
Cat. 900 = Novelty
Cat. 1000 = Novelty Sideways Motion
Cat. 1200 = Filigree Stitches Sideways Motion
Cat. 1400 = Tapering stitches
Cat. 1500 = Skyline stitches
Cat. 1700 = International

Perfect stitch formation
– use the same thread color for upper and lower thread
– reinforce the fabric on the wrong side using stabilizer
– use an additional, water-soluble stabilizer on the right side of pile or longfiber materials (e.g. wool, velvet etc.) which can be easily removed after sewing

Tapering

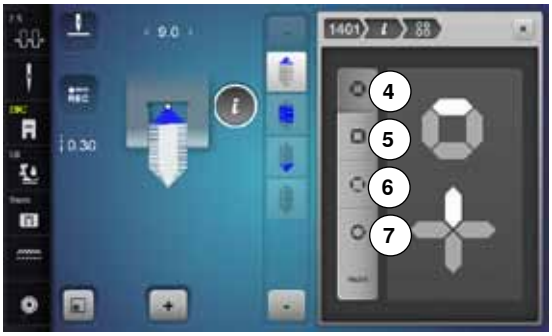
Tapering is a technique in which the stitch patterns come to a point at the beginning and end. Four different angles are pre-programmed and another angle can be determined manually.



- select stitch No. 1401
- ► the first section **1** is active
- ► section **1** and **3** have a programmed length; you can set the length of section **2** yourself by pressing «Quick reverse»-button

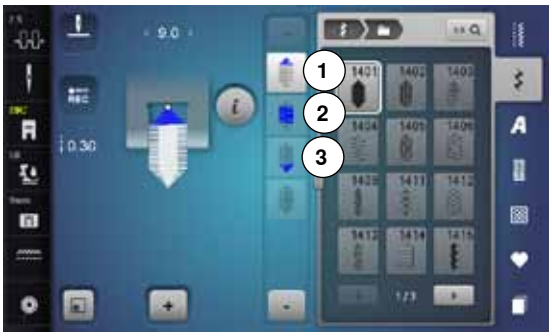
Altering angle

- touch «i»-icon
- touch «Angle type»-icon



- ► the Display showing the overview of prgrammed angles appears
- ► angle **4** is active
- select another angle by touching the icons **5**, **6** or **7**

- touch «man»-icon
- use the top «+» and «-» icons to move the tips of the pattern from -1.00 (far left) to 1.00 (far right)
- touch the yellow number in the center to place the tips in the center of the pattern (0.00)
- use the bottom «+» and «-» icons to set the angle of the tips between 0.00° and 90.00°
- touch the yellow number in the center to set the angle to 45°



Programming the length of section 2

- «REC»-icon is active (dark), when a tapering pattern is selected
- sew the first section
- use «Quick reverse »-button to set the length of section **2**
- once the length is programmed, the field is turned off (inactive, bright)
- after programming section **2**, section **3** is sewn automatically and the sewing computer stops
- if a new length is to be programmed, touch the icon again

Programming the length of section 2 by Entering mm

- touch «Tapering length»-icon
- program the length using the stitch width or the stitch length knob
- touch the small «i» at the top of the Display
- the Function Overview appears
- sew the stitch pattern
- all three sections are automatically sewn and the sewing computer stops
- if a new length is to be programmed, touch the icon again

Manual setting the Length of Section 2

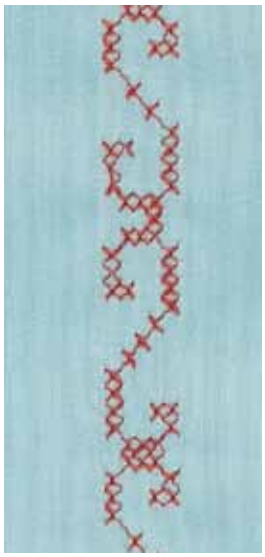
- touch «man»-icon
- sew first section
- use «Quick reverse»-button to set the length of section **2**
- the third section is automatically sewn and the sewing computer stops
- the length is not programmed and must be reset each time a new tapered pattern is started

Back

- touch «i»- or «Close»-icon
- the Display showing the functions is closed
- the tapering patterns appear

Application examples of Decorative stitches

Cross Stitch



Reverse pattern foot no. 1C/1D or
Open embroidery foot No. 20C or 20D (optional accessory)

Cross Stitch

– cross stitching is a traditional technique, and extends the range of decorative stitches
– if the cross stitches are sewn on fabric with a linen texture, they look like hand-stitched cross stitching

Application
– for home furnishings
– for trimmings on garments
– for embellishing in general

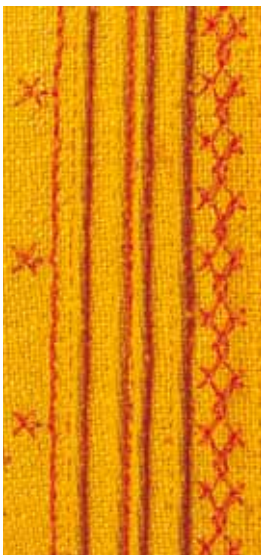
Sewing
Cross stitches of Category 300 can be stitched and combined like any other decorative stitches.

Sewing Trims
- select cross stitch
- stitch a row, using the seam guide or slide-on table seam guide

It is important to stitch the first row in a straight line, as it will serve as a reference for the rows that follow.
- select new stitch pattern
- stitch a second row next to first at a distance of one presser foot's width, or using the seam guide
- repeat for the following rows of stitching

Use cotton embroidery thread for cross stitching
Stitch appears fuller.

Pintucks



Pintuck feet (optional accessory)

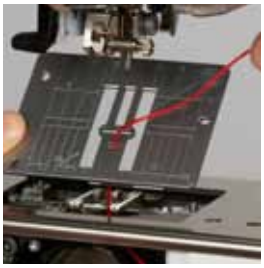
– No. 30 (3 grooves) = 4 mm double needle: for heavy weight materials
– No. 31 (5 grooves) = 3 mm double needle: for heavy to medium weight materials
– No. 32 (7 grooves) = 2 mm double needle: for light to medium weight materials
– No. 33 (9 grooves) = 1 or 1.6 mm double needle: for very light materials (without additional pintuck cord)
– No. 46C (5 grooves) = 1.6-2.5 mm double needle: for very light to medium weight materials

Straight stitch No. 1

– this technique reduces the size of the fabric (allow for enough fabric)
– pintucks are narrow stitched folds which are normally sewn on the fabric before cutting out the pieces for garments or other sewing projects
– for embellishing or in combination with other heirloom embroidery techniques

Corded pintucks

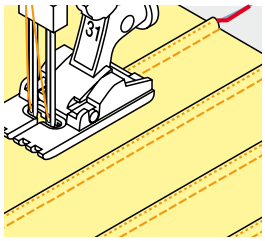
– pintucks may be sewn with or without cord
– cord pintucks for a raised effect and texture
– chose a cord that fits well into the grooves of the selected pintuck foot
– the cord must be colorfast and shrinkproof



Inserting the cord

- remove the stitch plate of the sewing computer (see page **25**)
- open bobbin cover
- pull the cord through the hook opening from the bottom and through the opening of the stitch plate
- replace the stitch plate

- close the bobbin cover
- make sure that the cord slides within the thread slot of the bobbin cover
- place the cord spool on the arm of the Free Hand System
- check that the cord runs smoothly



Sewing Pintucks

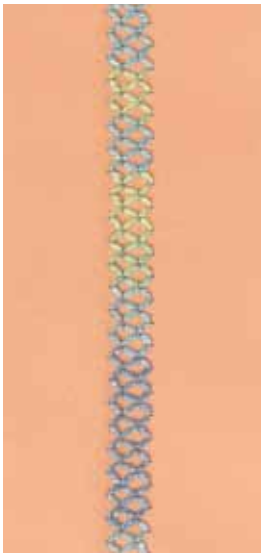
- sew first pintuck, marking the stitching line if necessary
► the cord will automatically feed into the pintuck

The cord lies on the wrong side of the material and is hold/sewn over by the lower thread.

- turn work if necessary
- place first pintuck in one of the side grooves in the presser foot (depending on the desired distance)
- sew second pintuck
- sew additional pintucks parallel to these two

If the thread doesn't slide smoothly past the bobbin cover, open the cover while sewing and turn off the lower thread indicator in the Setup Program.

Bobbin-Play sewing



ATTENTION!
For this application an accessory bobbin case is required.

Free motion sewing
The bobbin can be filled different thread material. For free-motion stitching to add texture. This method is similar to «normal» free-motion sewing, but is done on the **wrong side** of the fabric.

Reinforce the area to be sewn with embroidery stabilizer. The design can be drawn on the wrong side of the fabric. You can also draw the design on the front of the fabric, then follow the lines with a freely guided straight stitch and polyester, cotton or rayon thread. The rows of stitching are visible on the right side of the fabric, and serve as reference lines for the bobbin-thread sewing.

The BSR function can be used for bobbin-thread sewing. Guide your project at uniform speed evenly under the needle, follow the lines of the design. Remove the stabilizer after you finish sewing.

Sew a sample first to check what the result looks like on the wrong side of the fabric. Alter the upper thread tension if required.

Sewing decorative stitches
Not all decorative stitches are suitable for this technique. Simple decorative stitches provide best results. Avoid compact stitch types and satin stitches.

The Open Embroidery foot No. 20 or No. 20D (optional accessory) is ideal for this technique.
– adjust stitch length and width settings (widen, lengthen) so that nice results are also achieved when sewing with thicker threads
– the long stitch function produces another decorative effect
– alter the upper thread tension if required

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Quilt Stitches

Overview Quilt Stitches

Various stitch patterns are available which are used especially in quilting, for patchwork or for appliqué.

- touch «Quilt stitch»-button
- select desired stitch pattern
  - the stitch width cannot be altered with certain stitch patterns
  - is indicated by a lock symbol

Quilters' securing program

Blanket stitch

Decorative quilt stitches variations 1339-1345, 1351, 1355-1359

Quilting straight stitch

Double blanket stitch

Quilt stitch/Handlook quilt stitch variations 1347, 1348, 1350

Piecing stitch/Straight stitch

Blind stitch (narrow)

Blanket stitch (dual)

Stippling stitch

Feather stitch

Double blanket stitch (dual)

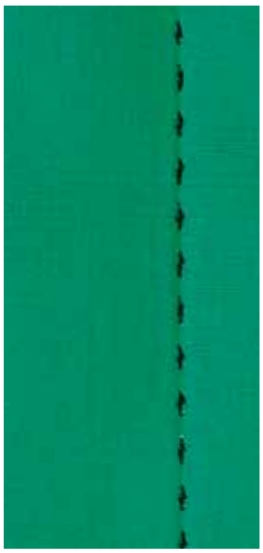
Handlook quilt stitch

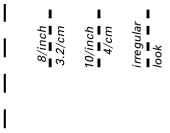
Feather stitch variations 1333-1338

Satin stitch

Application examples of Quilt stitches

Handlook quilt stitch





Reverse pattern foot No. 1C

Handlook quilt stitch No. 1328, 1347, 1348, 1350

Suitable for all fabrics and work which should look «hand sewn».

Thread
- Upper thread = Monofilament
- Lower thread = 30/2 cotton thread

Test sewing
- the lower thread is pulled up by strong upper thread tension
- **one** stitch is visible (bobbin thread)
- **one** stitch invisible (monofilament) = hand-look effect

Upper thread tension
Depending on the fabric increase the tension (6-9).

Balance
Adjust stitch with the balance if necessary.

Perfect corners
- press «Needle stop»-button, needle down, press «Pattern end/ Pattern repeat»-button, turn fabric
- when pivoting make sure that the fabric does not become distorted

Monofilament breaks
- sew more slowly
- reduce upper thread tension slightly

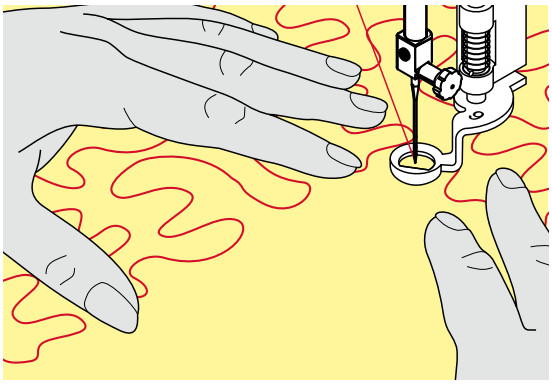
Free-motion quilting

Darning foot No. 9 (optional accessory)

Straight stitch No. 1

Free-motion quilting
For all types of free motion quilting work.

Preparation
- pin top layer, batting and backing together, or baste if necessary
- attach slide-on table
- use the Free Hand System
- lower the feed dog



Holding the work
- hold the work with both hands like an embroidery frame, close to the presser foot

Quilt gloves with rubber fingertips will help when guiding the work.

Quilting a design
- quilt from the center outwards
- guide the work using smooth, round movements to form the design of your choice

Stipple quilting
– this technique covers the entire surface of the fabric with quilt stitches
– the lines of stitching are rounded and never cross one another

Free-motion quilting and darning
The two techniques are based on the same Free motion principles.

Poor stitch formation
– if thread is lying on top of the fabric, slow down the movement of the material
– if there are knots on the wrong side of the fabric, move the material more quickly

Monofilament breaks
Reduce the motor speed and/or loosen the upper thread tension.

Thread breaks
Guide the fabric more consistently.

BSR (BERNINA Stitch Regulator)

Quilting with BSR

BSR-Function
The BSR presser foot reacts to the movement of the fabric under the foot and controls the speed of the sewing computer up to the maximum speed possible. The following applies: the faster the fabric is moved, the higher the speed of the sewing computer.
If the fabric is moved too fast, an accoustic signal (beep sound) is heard, if the Beeper is activated (see page **109**).

ATTENTION!

As long as the BSR presser foot is illuminated red, adjustments like threading and changing the needle, for example, must not be carried out, as the needle will engage while fabric is moved unintentionally! Without fabric feed the BSR mode is turned off after approx. 7 seconds and the red light goes off (mode 1). Please refer to Safety Instructions!
By activating the BSR function the sewing computer sews either continuously at reduced speed (mode 1, standard), or as soon as the fabric is moved (mode 2).

BSR function with straight stitch No. 1
This function using the BSR presser foot, allows for free-motion quilting (sewing) using the straight stitch and a pre-selected stitch length up to 4 mm. The regulated set stitch length is maintained within a certain speed, independent of the movement of the fabric.

BSR function with zig-zag No. 2
The zig-zag can be used e.g. for thread painting. The set stitch length will not be maintained when sewing with the zig-zag stitch, but the BSR function simplifies the application.

There are:
Two different BSR modes
- **BSR 1-Mode** is the active standard
- the sewing computer runs continuously at a reduced motor speed, as soon as the foot control or the «Start/Stop»-button is pressed
- the speed of the sewing computer is regulated by the movement of the fabric
- through continuous needle movement, securing in the same position is possible without pressing an additional button

- **BSR 2-Mode** is activated by selecting the «BSR 2»-icon in the «BSR»-Display
- the sewing computer will only engage if the foot control or the «Start/Stop»-button is pressed and the fabric is moved simultaneously
- the speed of the sewing computer is regulated by the movement of the fabric
- to secure press the «Securing function»-button
- by selecting the «BSR 1»-icon in the «BSR»-Display Mode 1 is activated

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For an even sewing start (the first stitch) the foot control must be pressed and the fabric moved simultaneously. This also applies for sewing points and straight stitching within a round form.

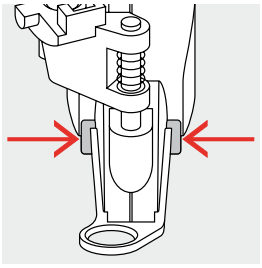
If the BSR function is deactivated and later re-activated without the sewing computer being switched off in between, the last selected BSR mode is active.

When exceeding a certain speed, adhering to regular stitch length cannot be guaranteed.

Make sure that the lens on the bottom of the BSR foot is clean (no fingerprints, etc.). Clean lens periodically with soft, slightly damp cloth.

Preparation

- lower the feed dog
- presser foot pressure may be reduced depending on the material type and thickness
- attach slide-on table
- use the Free Hand System



Remove presser foot sole

- press both buttons together
- slide the sole downwards out of the groove

Attaching the presser foot sole

- slide the desired sole up in the groove until it clicks into its place

- attach the BSR Presser Foot to the sewing computer
- plug the cable in the outlet **1** provided

- ► «BSR»-Display is opened automatically
- ► BSR 1 mode is engaged
- set the desired stitch length
  - the standard stitch length is 2 mm
  - when sewing small forms and stipplings, stitch length of 1-1.5 mm is suggested

Functions in the BSR mode

Needle stop down (standard)
- ► the arrow points down on «BSR»-Display
- ► the sewing computer stops with needle down, when taking foot off foot control or when «Start/Stop»-button is pressed

Needle stop up
- • touch «Needle stop»-icon in the Display
- ► the arrow points up
- ► the sewing computer stops with needle up, when taking foot off foot control or when «Start/Stop»-button is pressed

Raising or lowering the needle
- • press «Needle stop»-button
- ► to raise or to lower the needle

Securing with «Start/Stop»-button (only Mode 1)
- • place the fabric under the presser foot
- • lower the presser foot
- • press «Needle stop»-button twice
- ► the lower thread is brought up
- • hold upper and lower thread
- • press «Start/Stop»-button
- ► BSR mode starts
- • sew 5-6 securing stitches
- • press «Start/Stop»-button
- ► BSR mode is stopped
- • cut threads
- • press «Start/Stop»-button
- ► BSR mode starts
- • continue the stitching process

Securing function (only Mode 2)
- • press «Securing function»-button
- • press either the foot control or «Start/Stop»-button

By moving the fabric some short securing stitches are sewn, then the set stitch length will be activated and the securing function will be automatically deactivated.

Free motion quilting (only Mode 2)
- ► BSR mode is activated
- • freemotion quilting can be sewn
- • by touching the securing function button is pressed during free hand quilting, a short securing stitch sequence is sewn and
- ► the sewing computer stops
- ► BSR mode is deactivated

Free motion quilting without BSR activation
- • touch «BSR»-icon
- • BSR mode is deactivated

Normal freemotion quilting can now be sewn with the BSR foot, without automatic regular stitch length.

Beeper (audio signal) activation/deactivation

- press «Setup»-button
- touch «Acoustic signal»-icon

Selecting sound for BSR in the Setup Program

- ► one sound is set as default (active)
- touch the icon **1** showing the loudspeaker for BSR
- ► the loudspeaker turns white and the icon dark
- ► the sound for the beeper is inactive

The loudspeaker is dark and the icon is bright when the sound of the beeper is activated.

Selecting sound for BSR in the «BSR»-Display

- touch the icon with the loudspeaker
- ► the icon turns dark and the loudspeaker white
- ► the sound for the beeper is inactive

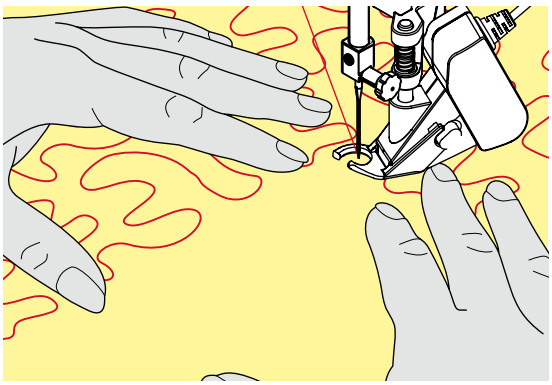
The icon with the loudspeaker is bright and the loudspeaker is dark when the sound for the Beeper is active.

Activating BSR Sewing Function
1st Option:
BSR-Function via the foot control
- plug in the foot control
- press the foot control
- ► presser foot is lowered
- press the foot control again
- ► BSR mode starts
- ► a red light appears on the presser foot
- press foot control while sewing
- – the speed of the sewing computer is regulated by the movement of the fabric
- release the foot control
- ► BSR mode is stopped

2nd Option:
BSR-Function via «Start/Stop»-button
- press «Start/Stop»-button
- ► presser foot is lowered
- press «Start/Stop»-button again
- ► BSR mode starts
- ► a red light appears on the presser foot
- – the speed of the sewing computer is regulated by the movement of the fabric
- press «Start/Stop»-button again
- ► BSR mode is stopped

Deactivating BSR Sewing Function by using «Start/Stop»-button
Mode 1
If the fabric is not moved for approx. 7 seconds, the BSR mode is deactivated and the red light on the presser foot goes off.

Mode 2
If the stitching process is ended by no longer moving the fabric, **one** additional stitch is made, depending on the needle position. The sewing computer always stops with needle up, even if the arrow on the «BSR»-Display points down.



Holding the work
- hold the work with both hands like an embroidery frame, close to the presser foot
- – abrupt movements (slowing down resp. speeding up) can result in slightly too short or too long stitches
- – continuous movement (no abrupt movements) will provide best results
- – do not pivot the fabric while sewing

Quilt gloves with rubber fingertips will help when guiding the work.

Application example:
- – BSR with zig-zag No. 2
- – zig-zag can be used for thread painting
- – areas can be filled and therefore forms or pictures can be created

BSR Function deactivation
- pull out the plug of the BSR presser foot connection cable on the sewing computer
- remove the BSR foot

BERNINA Dual Feed

ATTENTION!
Only use «D» presser feet with cut-out at the center back.
If an incorrect presser foot is attached, the sewing computer will not start with the dual feed engaged. An error message will appear.

With the BERNINA Dual Feed the top and bottom layer of fabric are fed simultaneously. Striped and checkered patterns can be matched perfectly by even feeding.

Presser Feet Selection
– Reverse pattern foot No. 1D
– Zipper foot No. 4D

More «D» presser feet are listed in the enclosed accessories catalogue.

Switching on BERNINA Dual Feed
- raise the presser foot
- pull dual feed down until it engages

Switching off BERNINA Dual Feed
- raise the presser foot
- hold dual feed on holder with two fingers, pull it down
- then push backward, slowly letting it slide upward

Fabrics

Difficult-to-work-with fabrics (with a nap, slippery, sticky etc.):
– velvet, normally sewn with the grain
– toweling
– Jersey, especially when sewing it crosswise to knit
– fake fur or coated fake fur
– fleece-types of fabrics
– batted fabrics
– stripes and checks
– curtain fabrics with pattern repeats
«Sticky» Fabrics:
– imitation leather, coated fabrics (Dual Feed presser foot with sliding sole)

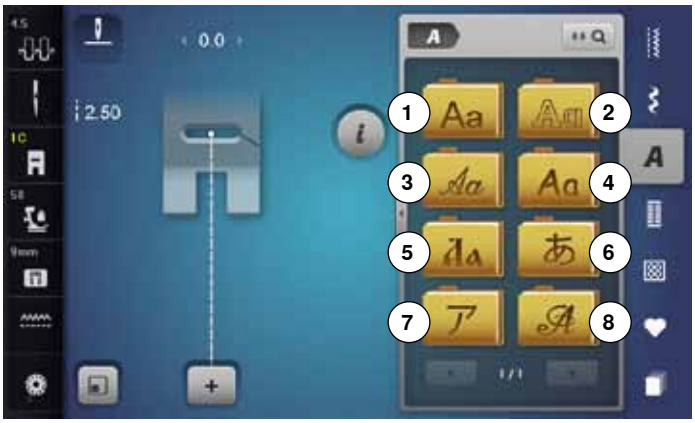
Application
Sewing:
– all sewing techniques on difficult fabrics, e.g. hems, zippers
Patchwork:
– accurate stripes and blocks
– decorative stitches up to 9 mm stitch width
Appliqué:
– open Embroidery foot No. 20D (optional accessory)
– sewing on ribbons and bias-binding

Presser foot pressure
Adjust the presser foot pressure to the fabric. The thicker the fabric the lower the presser foot pressure.

Alphabets

Overview Alphabet

Block-, Double Block-, Script and Comic alphabet as well as Cyrillic can be sewn in two different sizes.
Monograms can be sewn in three different sizes.
Block-, Double Block-, Script and Comic alphabet as well as Cyrillic can be sewn in lower case letters.



- touch «Alphabet»-button
- ► the Display shows the overview with the different alphabet types

1 Block alphabet
2 Double-Block
3 Script (Italics)
4 Comic Sans
5 Cyrillic
6 Hiragana
7 Katakana
8 Monograms 30/20/15mm

- select desired alphabet

Lettering

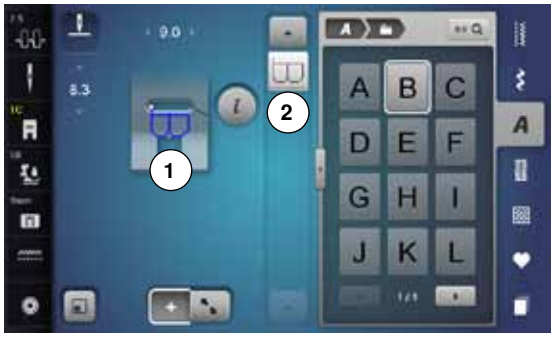
- all capital letters, lower case letters, numbers, punctuation marks and special characters can be viewed using the arrow icons

Perfect stitch formation

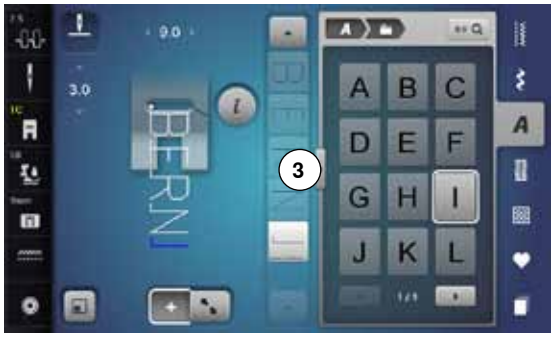
- use the same thread color for upper and lower threads
- reinforce the fabric with embroidery stabilizer on the wrong side
- use an additional, water-soluble stabilizer on the right side of pile or napped fabrics (e.g. wool, velvet etc.)
- for lightweight fabrics more simple lettering types programmed with straight stitches are suitable (such as double block letters)

Combining characters

Individual letters and rows of the same letter of the same alphabet are sewn in single mode.
Letters for names, addresses, words, etc. are combined and sewn in combi mode.



- touch «Combi mode»-icon
- touch the icon with the desired letter
- ► the letter appears in the Stitch Altering Area **1** and in the Editing Area **2**
- ► the cursor is below the letter



Selecting the next letter

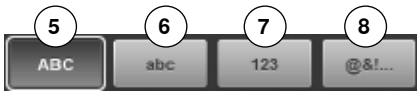
- touch the required icon
- ► the next letter appears in the Stitch Altering Area and in the Editing Area

Large view of the Display

- touch icon **3**
- select desired alphabet
- ► the Display showing the keyboard is opened
- ► the «ABC»-icon (upper case) is active automatically
- select desired lettering
- by scrolling at the bottom on the right in the Display more lettering can be viewed
- ► letters appear in the text bar **4**

Corrections

- touch the «Delete»-icon
- ► the entered text is deleted from right to left



5 «ABC» upper case (Standard)
6 «abc» lower case
7 «123» numbers
8 «@?!» special characters

Correcting the combination

Inserting character
The letter is inserted below the cursor.
Activating desired place:
- select or scroll to required letter in the Editing Area
- ► the stitch pattern combination is moved to the starting position of the desired stitch pattern in the stitch altering area
- the starting point is indicated by a white dot **1** in the stitch hole of the virtual presser foot
- select new letter
- ► the letter is inserted after the selected letter

Inserting an additional letter at the beginning of a pattern combination:
- ► move the cursor to the top by using the arrow icons

Deleting Letters
A letter is deleted above the cursor.
Activating desired place:
- select or scroll to required letter in the Editing Area
- touch «i»-icon
- touch «Delete»-icon or
- select the desired letter with the finger, keep it pressed and move it to the right
- remove the finger from the Display
- ► letter is deleted

Saving and deleting combinations see page **122, 128**.

Alphabet in combination with functions

Selecting lower case letters
- scroll through the alphabet using the scrolling icons until the lower case letters appear
- touch «abc»-icon in the large view of the alphabet, see page **114**

Altering font size
- touch «i»-icon
- touch «Font size»-icon
- ► the small «A» turns dark and the icon is yellow-framed
- ► the font size is reduced
- touch the «Font size»-icon again
- ► the big lettering is active again (big «A» is dark)

Monograms

Monograms are stitched in sideways motion.

- start (white dot) and end (red cross) are visible in the Stitch Altering Area
- the stitch width cannot be altered
- is displayed by a symbol

- touch «Adjusting size»-icon

- the stitch pattern is adjusted in the size and placed so that the whole stitch pattern is visible
- the virtual presser foot disappears

Monogram Sizes

Font size 1 = 30 mm

- when starting the monogram category the size is 1 is activated (big «A» is dark)
- monograms in size 1 are individual letters
- the sewing computer sews and stops automatically

Font size 2 = 20 mm

- touch the «Font size»-icon
- the «A» in the middle turns dark
- monograms in size 2 are individual letters
- the sewing computer sews and stops automatically

Font size 3 = 15 mm

- touch the «Font size»-icon
- the small «A» turns dark
- monograms in size 3 are individual letters
- the sewing computer sews and stops automatically

Sideways-Motion stitch patterns, e.g. Sewing Monograms

- use the slide-on table to increase your sewing surface
- when sewing Sideways Motion stitches make sure that the fabric is fed evenly and lightly, ensuring that it cannot push against or catch on anything
- it is important to let the sewing computer sew without pulling, pushing or holding the fabric back
- use the presser foot No. 40C

Sewing a test sample with the threads, the actual fabric and stabilizer you intend to use is recommended.

Balance

- stitch patterns may differ from the original shape depending on the fabric, stabilizer and thread quality
- with the Balance function it is possible to adjust the stitch pattern to suit the fabric used

Personal Program

Creating a personal Display

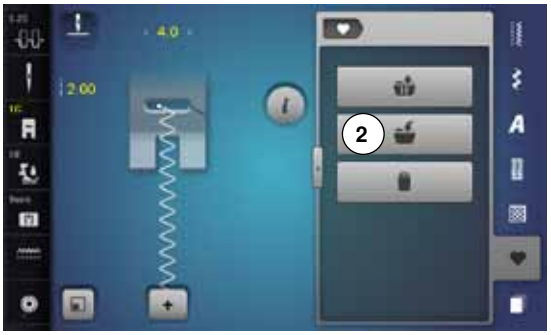
Use the Personal Program to create a folder with stitches you use the most for a special project. Stitch patterns as well as their alterations are saved in the Personal Program.

The following alterations can be saved:
- Stitch width
- Stitch length
- Needle position
- Thread tension
- Mirror Images
- Pattern extend
- Long stitch
- Balance
- Pattern repeat 1–9x

If the memory has already been filled with embroidery motifs and stitch pattern combinations, no further stitch patterns can be saved in the Personal Program. A messsage appears. The content in the memory must first be deleted to ensure there is sufficient free capacity.

Preparing stitch patterns

Programming/Saving first stitch pattern
- select e.g. the zig-zag in the «Practical stitch»-Display
- make alterations



- touch «Personal program»-button **1**

- touch «Save»-icon **2**

- a Display with four folders appears
- select the folder where the stitch pattern is to be saved, e.g. 1
- each folder can accommodate 100 stitch patterns in maximum

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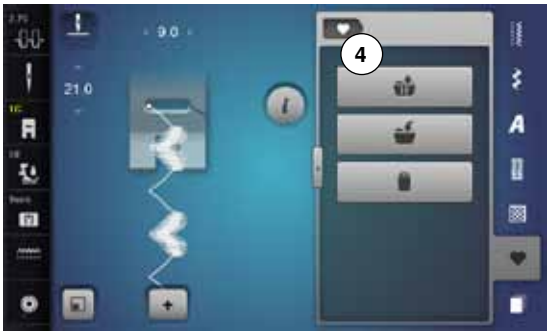
- touch «Save»- **3** or «OK»-icon **4**
- ► the altered zig-zag is saved
- ► the Display closes

Programming/Saving second stitch pattern

- touch «Buttonhole«-button
- select standard buttonhole No. 51
- save the stitch pattern as desribed above
- save any other stitch pattern in the same way

Stitch pattern selection in the Personal program

- touch «Personal program»-button

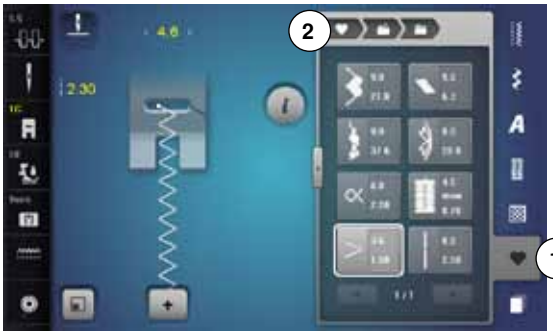


- touch «Open»-icon **4**
- touch desired folder e.g. 1

Personal Display

- ► the programmed stitch patterns are displayed in pictures plus stitch width and stitch length
- further stitch patterns can be scrolled by using the arrow icons

Altering/Overwriting stitch patterns



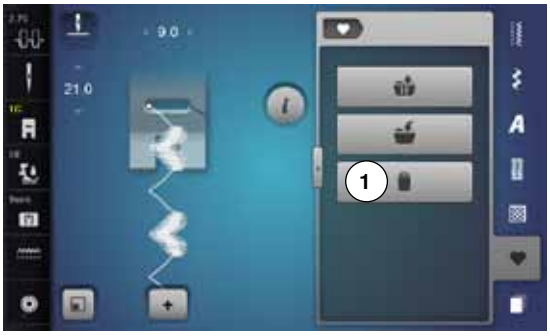
Selecting stitch patterns

- press «Personal program»-button **1**
- touch «Open»-icon
- touch desired folder
- select zig-zag
- make alterations
- ► stitch width and stitch length are altered (yellow numbers)
- touch «Back»-icon **2**
- touch «Save»-icon
- select the same folder

- select zig-zag **3**

- touch ✔ to confirm
- ► the alterations are saved

Deleting stitch patterns



Selecting stitch patterns

- touch «Personal program»-button
- touch «Delete»-icon **1**
- select the desired folder

- select the stitch pattern to be deleted

- touch ✔ to confirm

► stitch pattern is deleted

► the remaining stitch patterns are moved by one position

Combi Mode

The sewing-/embroidery computer has a memory system where both, the sewing and embroidery memories are saved.

In the sewing memory stitch patterns, lettering and numbers can be combined and saved.

In the sewing memory each «Drawer» can store a maximum of 70 stitch patterns as long as there is sufficient free space (capacity) available. If the storage space (but not all drawers) is full, there may be too many embroidery designs in the memory.

The memory is long-term, i.e. contents are kept until they are deleted. A power cut or switching off the sewing computer does not have any effect on the stored contents.

Creating Stitch pattern combinations

Programming and saving

- touch «Decorative stitch»-button
- select category
- touch «Combi mode»-icon
- select the desired stitch pattern directly or type in the number
- make any alteration concerning stitch length, stitch width, needle position etc.
- select another stitch pattern

- touch «Memory»-icon **1**

- touch «Save»-icon **2**

- touch «Save» **3** or «OK»-icon
- ► the combination is saved
- ► the Display closes

Deleting Stitch patterns

Deleting individual stitches

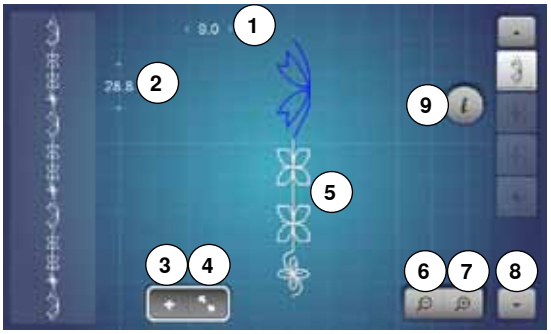
- touch «i»-icon
- touch «Delete»-icon
- ► the stitch pattern above the cursor is deleted
- touch «Delete»-icon as many times until the Stitch Altering Area is empty or
- select the desired stitch pattern with finger, keep it pressed and move it to the right
- remove finger from the Display
- ► the stitch pattern is deleted
- ► repeat the procedure until the Stitch Altering Area is empty

Deleting entire combination

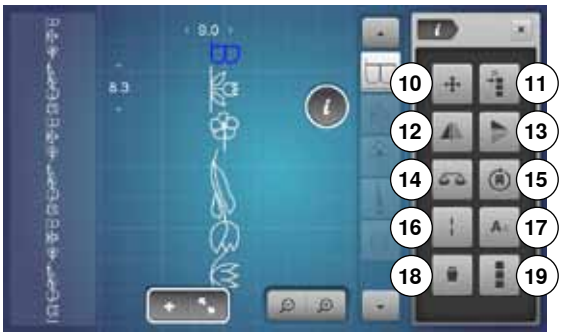
- touch «i»-icon
- touch «Edit whole combination»-icon
- touch «Delete»-icon
- touch ✔ to confirm
- ► the Stitch Altering Area is empty
- touch «Close»- or «i»-icon
- a new pattern combination can be programmed

Overview Combination

- touch «Combination overview»-icon
- ► the Display shows following:



1 Stitch width of the active stitch pattern
2 Stitch length of the active stitch pattern
3 «Combi mode»-icon
4 «Combination overview»-icon
5 Complete stitch combination
6 Reducing the combination view
7 Enlarging the combination view
8 Stitch pattern combination can be scrolled via the arrow icons
9 «i»-icon to show the functions in this Display



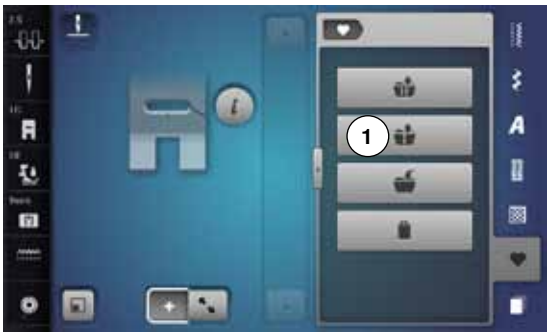
- touch «i»-icon
- ► following functions can be used:

10 Connecting stitches
11 Moving single pattern or parts of a combination
12 Mirror Image left/right
13 Mirror Image up/down
14 Balance
15 Multi-Directional sewing
16 Long stitch
17 Font size in alphabets
18 Deleting single pattern or parts of a combination
19 Editing the whole combination

- ► each stitch pattern can be directly selected e.g. for alterations
- touch «Combination overview»-icon
- ► the Display closes

Opening a saved combination

- optionally touch «Combination overview»-icon
- touch «Memory»-button



- touch «Open»-icon **1**

- ► a summary of the saved combinations appears
- touch the desired drawer
- ► the saved combination appears in the Stitch Altering Area

Correcting a stitch pattern combination

Inserting a stitch pattern

- select the desired position in the combination or in the Editing Area
- select a new stitch pattern
- ► the new stitch pattern is inserted below the selected stitch pattern

To insert a stitch pattern at the beginning of a combination the cursor must be positioned above the **first** stitch pattern.

Altering stitch patterns

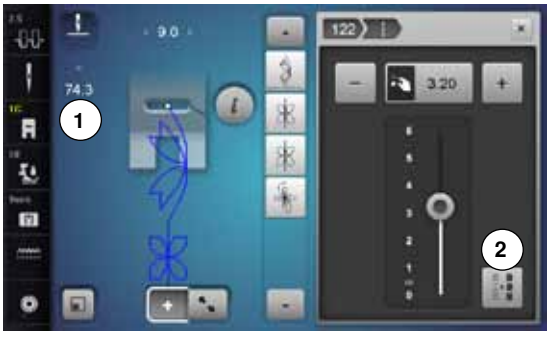
- select the desired stitch pattern in the combination
- touch «i»-icon
- select desired function, e.g. Mirror Image left/right
- ► the stitch pattern is mirrored left/right
- touch «Close»- or «i»-icon

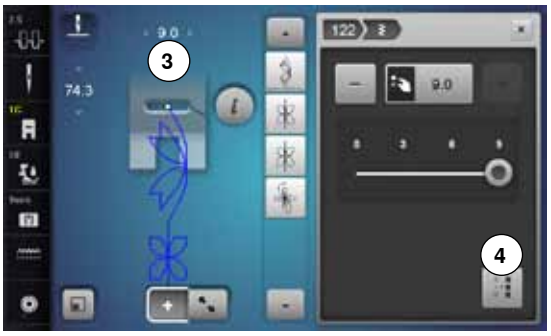
The alterations always affect the stitch above the cursor. Saved stitch combinations can be altered or corrected in the same way. To make corrections and alterations permanent, the combination must be saved again afterwards.

Adjusting the length within the combination

The length of all stitch patterns within a combination can be adjusted to the longest stitch pattern.

- touch «i»-icon
- touch «Edit whole combination»-icon
- touch «Stitch length scale»-icon **1**
- ► the «Stitch length»-Display appears
- touch «Length adjustment in combination»-icon **2**
- ► the length of all the stitch patterns is adjusted to the longest stitch pattern within the combination



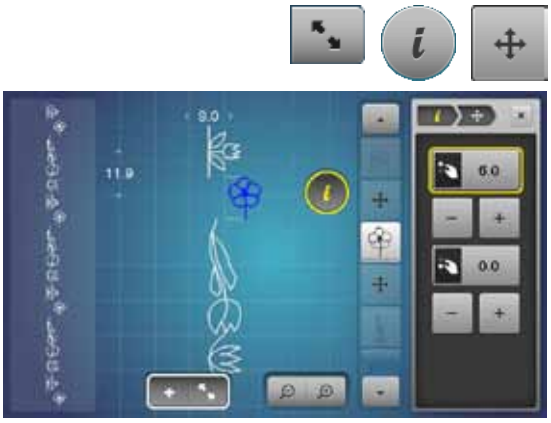


Adjusting the width within the combination
The width of all stitch patterns within a combination can be adjusted to the widest stitch pattern.
- touch «i»-icon
- touch «Edit whole combination»-icon
- touch «Stitch width scale»-icon **3**
- ► the «Stitch width»-Display appears
- touch «Width adjustment in combination»-icon **4**
- ► the width of all the stitch patterns is adjusted to the widest stitch pattern within the combination

Mirroring complete combinations
- touch «i»-icon
- touch «Edit whole combination»-icon
- touch «Mirror Image»-icon
- ► the complete combination is mirrored
- touch «Close»- or «i»-icon

Combination subdivider 1
- touch «i»-icon
- touch «Edit combination at cursor position»-icon
- touch «Subdivide combination 1»-icon
- a combination can be subdivided into several sections with the «Subdivider 1»-function
- ► only the section where the cursor is positioned is sewn
- to sew the next section, the cursor must be placed in the respective section

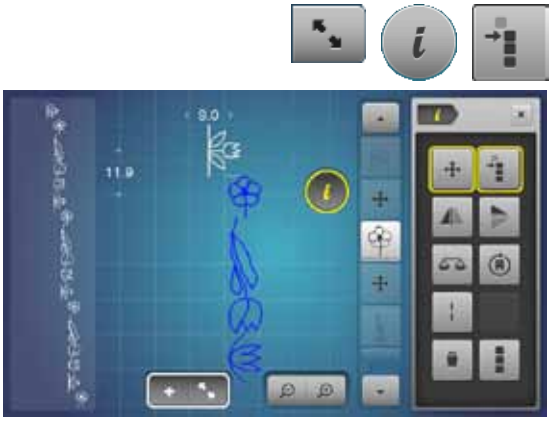
Combination Subdivider 2
- touch «i»-icon
- touch «Edit combination at cursor position»-icon
- touch «Subdivider 2»-icon
- a combination can be interrupted at any position using «Subdivider 2»-function
- sew the first section
- ► the sewing computer stops automatically when it reaches the programmed function
- reposition the fabric
- sew the next part etc.



Moving individual stitch patterns in a combination

- touch «Combination overview»-icon
- select desired stitch pattern
- touch «i»-icon
- touch «Connecting stitches»-icon
- move the stitch pattern in 0.1 mm steps using the knobs or «+»/«-»-icons or
- move the stitch pattern to any direction using the Touchscreen pen or the finger

► Connecting stitches are inserted automatically



Moving multiple stitch patterns in a combination

- touch «Combination overview»-icon
- select desired stitch pattern
- touch «i»-icon
- touch «Moving combination»-icon
- move the active and any other stitch patterns using the knobs or «+»/«-»-icons, the Touchscreen pen or the finger

Sewing individual stitch patterns of a combination in any direction

- touch «Combination overview»-icon
- select desired stitch pattern
- touch «i»-icon
- touch the «Directional-Sewing»-icon
- rotate the stitch pattern in 0.5°- steps using the stitch width knob
- rotate the stitch pattern in 1°- steps using the stitch length knob
- rotate the stitch pattern in 0.5°- steps using the «+»/«-»-icons

Sewing the complete combination in any direction

- touch «Combination overview»-icon
- touch «i»-icon
- touch «Edit the complete combination»-icon
- touch the «Directional-Sewing»-icon
- rotate the stitch pattern in 0.5°- steps using the stitch width knob
- rotate the stitch pattern in 1°- steps using the stitch length knob
- rotate the stitch pattern in 0.5°- steps using the «+»/«-»-icons

Stitch pattern combination

Overwriting
- program a new stitch combination
- touch «Memory»-button
- touch «Save»-icon
- select the drawer to be overwritten (e.g. 3)
- touch ✔ to confirm

Touch ✘ to cancel the overwriting procedure.

Deleting
- touch «Memory»-button
- touch «Delete»-icon
- select the drawer to be deleted (e.g. 5)
- touch ✔ to confirm

Touch ✘ to cancel the deleting procedure.

History

- press «History»-button

- the last maximum 15 sewn stitches appear
- a stitch already contained in the History Display will be overwritten when sewing restarts

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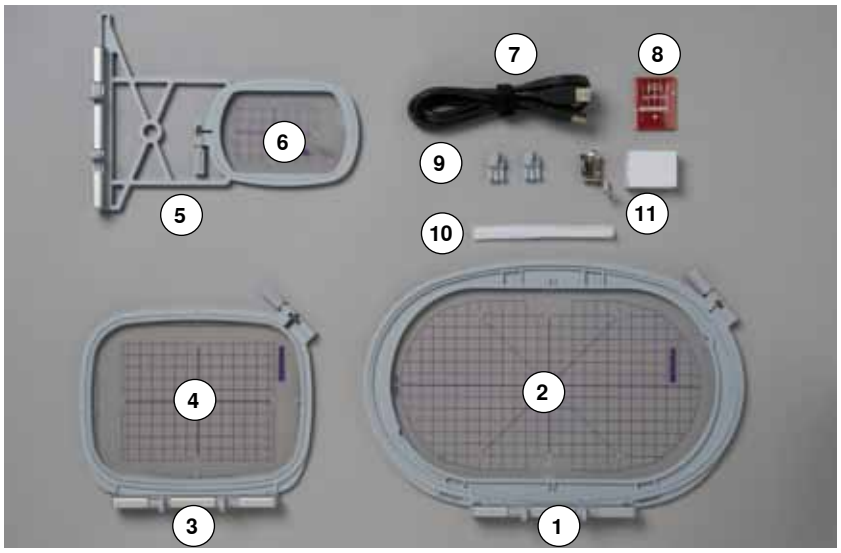
Accessory

Standard Accessory



1 Embroidery hoop oval, 145x255 mm
2 Embroidery template for embroidery hoop oval, VAR 00
3 Embroidery hoop medium, 100x130 mm
4 Embroidery template for medium embroidery hoop
5 Embroidery hoop small, 72x50 mm
6 Embroidery template for embroidery hoop small, blue
7 USB connecting cable
8 Embroidery needle pack (SUK)
9 Template holder
10 Net for thread spool, white
11 Embroidery foot No. 26

Embroidery module

Detail view

1 Embroidery arm
2 Sewing computer guide rails
3 Bracket for attaching embroidery hoop
4 Connection to the sewing computer

5 Connection for embroidery module

Important Embroidery information

Embroidery threads

A good quality thread is essential for embroidery to avoid poor stitch quality, thread breakage, etc.

Embroidery is particularly effective if you use 40wt glossy rayon or polyester embroidery threads as upper threads. They are available in a wide range of colors for beautiful embroidery.

Polyester threads
Polyester with a brilliant sheen is a hard wearing colorfast thread and has a high tensile strength which is suitable for all types of embroidery.

Rayon threads
Rayon is a soft viscose fiber with a brilliant sheen and suitable for fine, delicate embroidery, or items that will not receive excessive wear and tear.

Metallic threads
Metallic thread is a light- to medium weight thread suitable for special effects in embroidery.
Reduce the speed and upper thread tension when embroidering with metallic threads.

Embroidery needle
– correct size thread must correspond with correct size needle
– replace the needle regularly

Use the vertical spool pin and attach the supplemental thread guide (optional accessory) when using guide eyelet for metallic and silk thread. A Metafil- or SUK-needle is recommended for embroidering with metallic threads.
Adjust upper thread tension and reduce the embroidery speed.

Lower threads

Bobbin Fill (special bobbin thread)
Bobbin Fill is an especially soft and light polyester thread suitable for bobbin thread. This special bobbin thread ensures a steady thread tension and an optimal intertwining of the upper and bobbin thread.

Darning and embroidery thread
Fine mercerized cotton thread which suits for embroidering on cotton.

In most cases, bobbin thread for embroidery is either white or black. Some special cases require same thread in top and bobbin.

Choosing the embroidery motif

Simple motifs with a low stitch count are suitable for embroidery on fine material. Large-scale, densely embroidered motifs (e.g. with multiple color and embroidery direction changes) are suitable for medium and heavy weight material.

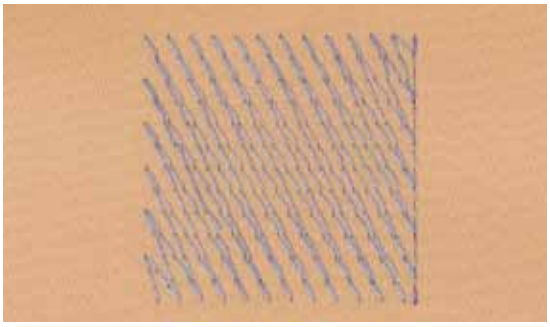
Embroidery test

Always test stitch the embroidery motif on the same type material. Use the same stabilizer as will be used on the finished project. Changes colors, stabilizer type or needle if needed to suite the motif/fabric combination.

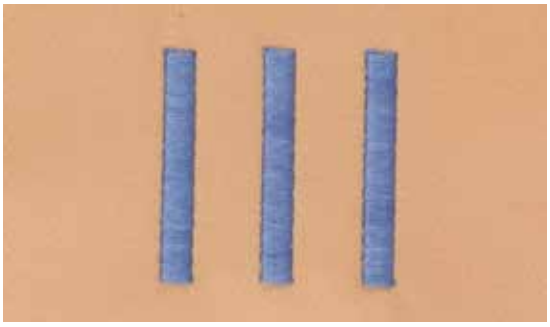
Scaling/Sizing motifs

Motifs can be scaled/sized using the on-screen icons or with the BERNINA Embroidery Software on the PC. Increasing/decreasing in a range of +/- 20 % provides the best results.

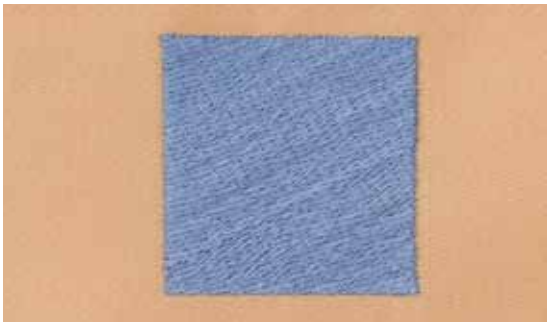
Different stitch types



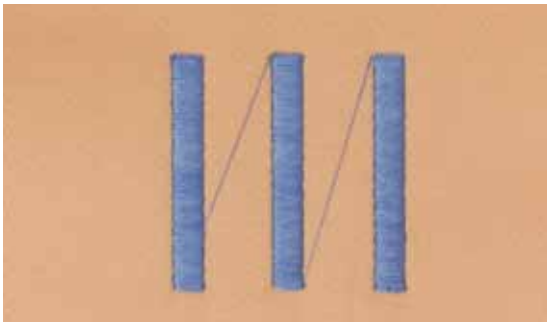
Underlay stitches
Underlay stitches are the foundation of a motif and are used to stabilize the base material and hold it in shape. They also prevent the covering stitches of the motif from sinking into the knit or the nap of the material.



Satin stitch
The needle moves left to right and vice versa. The result is a very dense, covering zig-zag stitching to fill the shape. Satin stitching fills are ideal for narrow and small shapes. Satin stitching is, however, not suitable for larger areas, since wide stitches are too loose and do not cover the fabric properly. In addition there is the danger that with too long stitches the threads could catch on something which would damage the embroidery.



Step stitch
A fill stitch with stitches of specified length sewn in rows used primarily to fill large areas quickly.

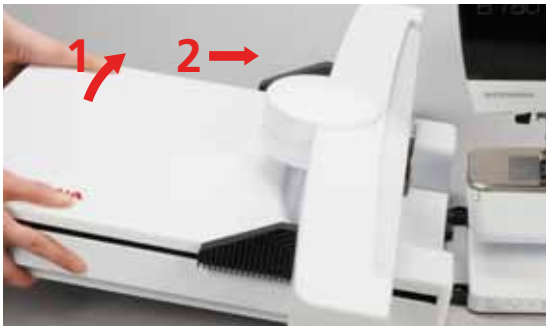


Connecting stitches
Long stitches which are used to get from one part of the motif to the next. Before and after the connecting stitch securing stitches are sewn. Connecting stitches are trimmed before the next color starts to embroider.

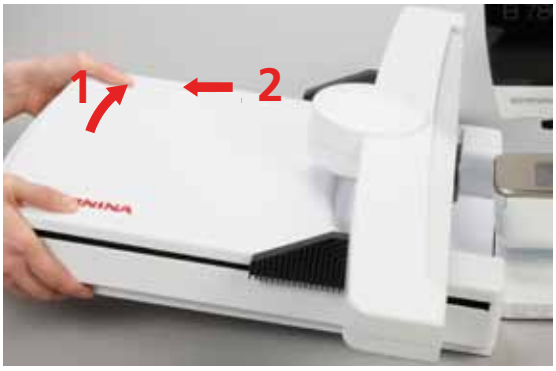
Preparing for embroidery

Attaching the Module

ATTENTION!
The slide-on table must not be attached while the embroidery module is being attached or removed.
When attaching the embroidery module ensure that all the units are on the same even surface!
The embroidery computer may run at high speeds when embroidering. Therefore the two units must be placed on a stable surface or the motor speed reduced when embroidering.
Make sure that there is enough space around the sewing computer and embroidery module to allow the unimpeded movement of the embroidery arm! Always separate the sewing computer and the embroidery module from one another before transporting – do not transport!



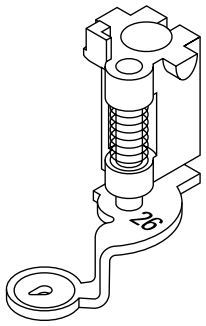
Connecting the module to the sewing computer
- lift the embroidery module on the left and
- carefully slide it from left to right into the sewing computer connection



Removing the module from the sewing computer
- lift the embroidery module on the left and carefully pull out and off to the left

Attach the slide-on table
The slide-on table can only be attached with the embroidery module arm to the far left. If necessary, use the «Park Module» function to move it, see page **150.**

Embroidery foot/Embroidery needle



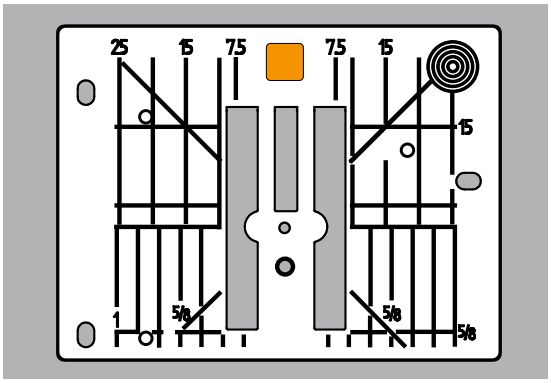
Embroidery needle
Embroidery needles (130/705 H-SUK) provide a larger eye and are slightly rounded. This avoids thread abrasion when using Rayon- and cotton embroidery thread.

– use SUK-needles
– depending on the embroidery thread use a size No. 70-SUK to No. 90-SUK needle
– exchange the needle regularly

Preparation
- attach Embroidery foot No. 26 to the embroidery computer
- raise the presser foot
- raise the needle

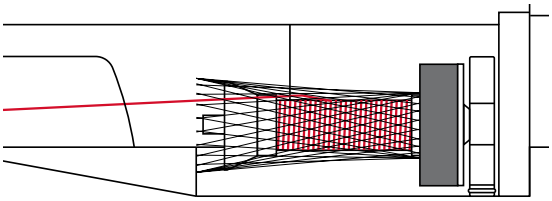
Lowering the feed dog
- press «Feed dog»-button **1**
- ► the feed dog is lowered

Straight-/CutWork stitch plate



The Straight-/CutWork stitch plate has a small needle hole in the needle insertion area. The small needle hole supports the fabric. This optimizes the stitching results.
- remove the standard stitch plate (see page **25**)
- replace it with the straight-/CutWork stitch plate

Threading upper and bobbin thread



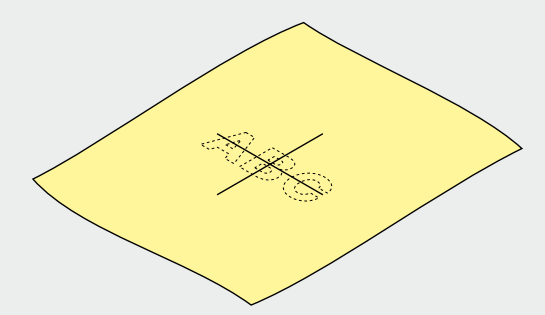
Threading upper thread
- place foam pad on the spool holder
- attach thread spool
- when using Rayon or slippery embroidery threads, slip the net over the upper thread spool
- ► this will feed the needle thread more evenly

Spool pin
When using metallic or specialty threads, using the vertical spool pin and the guide eyelet (optional accessory) for metallic and silk threads.

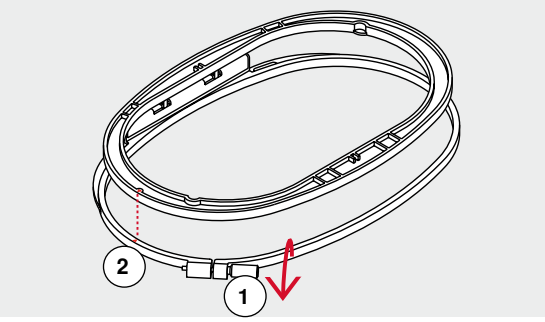
Threading lower thread
Thread the lower thread for embroidering in the same way as for sewing, see page **21**.

Insert the bobbin case and close the bobbin cover to activate the lower thread indicator (must be activated in the Setup-Program).

Embroidery hoop



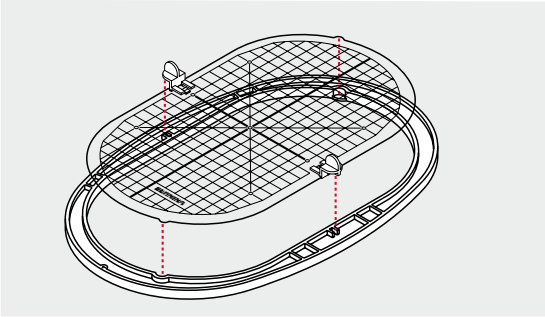
Center determination
- determine the location of the center of the design within the fabric
- mark the material with fabric marker or chalk



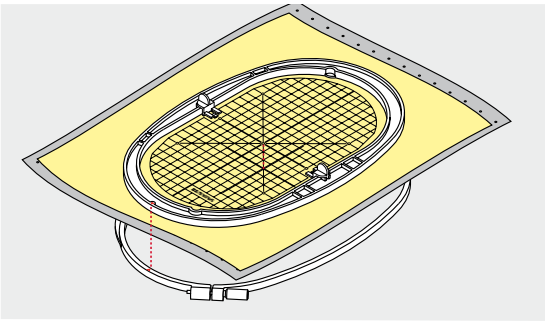
Using the embroidery hoop
- loosen the screw **1** of the outer hoop if necessary
- remove the inner hoop

Match the arrows **2** of both hoops.

The arrows are
– on the oval and medium hoop at the center front
– on the small hoop to the right side
– on the Mega Hoop, Maxi Hoop and Jumbo-Hoop (optional accessory) at the center front



Embroidery template
– there is an embroidery template for each hoop
– the embroidery area is marked in 1cm squares
– the center and end point are marked with holes
- for transferring marks to the material
- attach the embroidery template holder
- place the template in the inner hoop, so the BERNINA logo is at the front edge (by the arrows) and can be read
- ► in this position the embroidery template clicks into the inner hoop

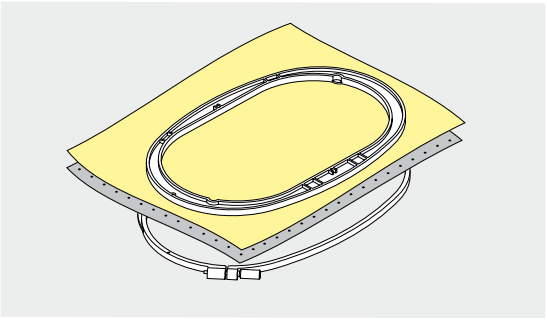


Hooping the material
- place the material under the inner hoop
- line up the marked center point on the center of the template
- place the material and inner hoop on the outer hoop

Match the arrows of both hoops.
- fit hoops into each other; ensure that the material does not move
- hoop the material to be embroidered tightly
- tighten the screw
- remove the template from the hoop by using the template holder

Stabilizers

Stabilizers



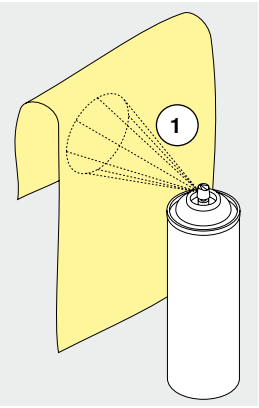
Tear-away stabilizers
– excess is easily torn away
– one or more layers can be used
– available in different weights
– for more stability, apply to the wrong side of the material with temporary adhesive spray before hooping
– carefully tear away excess stabilizer from the back of the embroidery after stitching
– motifs are not skewed
– stabilizer will remain under larger embroidered areas

Application:
For all woven materials and materials without stretch.

Cut-away stabilizers
– one or more layers can be used
– available in different weights
– for more stability, apply to the wrong side of the material with temporary adhesive spray before hooping
– carefully cut away from the back of the embroidery after stitching
– motifs are not skewed
– stabilizer will remain under larger embroidered areas

Application:
For all elastic materials.

Adhesive Spray



Avoid using spray adhesive next to your embroidery system.
- at a distance **1** of 25-30 cm
- use adhesive spray carefully
- spray the stabilizer and adhere to the wrong side of the material carefully smoothing material so there are no puckers

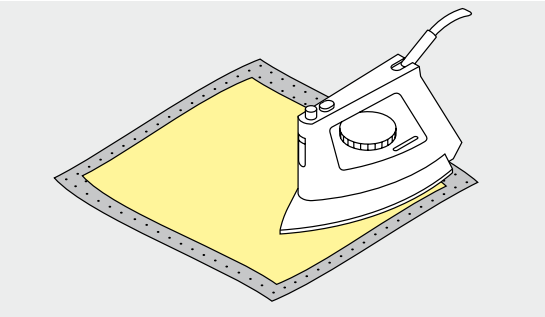
Application:
– stretch and knitted material: to retain shape
– smooth material: to avoid slipping of material layers
– appliqués can be exactly positioned
– material pieces: position material pieces on stabilizer, e.g.pocket flaps
– napped materials (i.e. velvet) that should not be clamped in the hoop because of the possibility of getting hoop marks
– to fix parts to be embroidered

Spray starch for additional stiffening
Spray starch is ideal for additional stiffening fine, soft or loosely woven materials.
- spray the area to be embroidered
- let dry; or press gently with a warm iron if necessary

Always use an additional stabilizer such as water soluble stabilizer on the wrong side of the material.

Application:
Ideal for fine, loosely woven materials, e.g. batiste, fine linen, etc.

Iron-on interfacing



Iron-on interfacings are available in a variety of weights. Iron-on interfacings should be selected to suit the material being used. Use an iron-on interfacing which is easily removable from the material.

- iron-on interfacings are pressed (fused) to the wrong side of the material

Application:
To provide body and shape for materials onto which motifs will be placed, use in conjunction with appropriate stabilizer.

Paper-backed adhesive stabilizer

- place stabilizer in hoop, paper side up
- use a pointed object (e.g. scissors) to score the paper
- remove paper to reveal the self-adhesive surface
- ► the self-adhesive surface reveals
- position the material to be embroidered on the stabilizer and smooth in place

Application:
– intended for delicate materials such as jersey or silk etc.
– for hard-to-hoop parts and materials

Make sure that the adhesive residue on needle, stitch plate and hook area is removed.

Water soluble stabilizer

Water soluble stabilizer looks like plastic wrap. Dissolve stabilizer in warm water when the embroidery is complete. Water soluble stabilizers are ideal protection for materials with a thick or looped pile such as toweling. This prevents the threads from sinking into the material and prevents the material from showing through the embroidery stitches.

- place on top of the material
- place all the layers together into the embroidery hoop
- use adhesive spray to fix stabilizer if necessary
- for material with a pile, reinforce with additional, suitable stabilizer on the wrong side
- after dissolving lay the motif down flat and let dry

Application:
– ideal for toweling, velvet, bouclé etc.
– ideal for fine, sheer materials such as organdy, batiste, etc.
– for lace embroidery

For lace embroidery place one or two layers of water soluble stabilizer in hoop (as the motif is not embroidered on any material, only the thread embroidered motif is left). Embroidery motifs must be combined with short stitches otherwise the individual motifs may fall out.

Functions

Overview «Function»-buttons embroidery computer

«Start/Stop»-button
Press the button to start or stop the embroidery computer.

«Presser foot position»-button
- press the button
- ► the presser foot is lowered a bit and lifted again for easy positioning of the material
- ► the presser foot is lowered on the fabric when start sewing
- press button again
- ► presser foot is lifted

«Automatic thread cutter»-button
- press button
- ► the upper and the lower thread are cut automatically

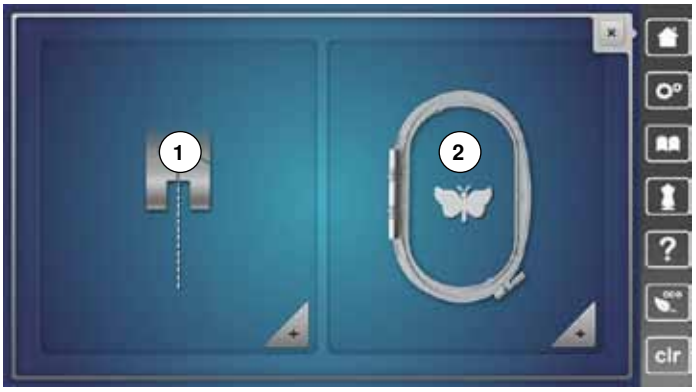
Stitch width and stitch length knob
The knobs are used to control a variety of functions, including altering motif size, rotate the motif etc. A message appears to indicate which knob should be used.

Speed control
The sewing and embroidering speed is infinitely variable with the slide.

Overview Display

Entry to Embroidery mode

- press «Home»-button



Embroidery mode
- touch «Embroidery mode»-icon **2**
- ► the «Embroidery»-Display appears

Sewing mode
- touch «Sewing mode»-icon **1**
- ► the «Sewing»-Display appears

Embroidery computer
To select embroidery motifs from the folders «Alphabets», «Motifs», «Stitch patterns» or «My Designs».

USB-Stick (optional accessory)
To select embroidery motifs which are saved on the USB stick.

Alphabets
To select built-in alphabets.

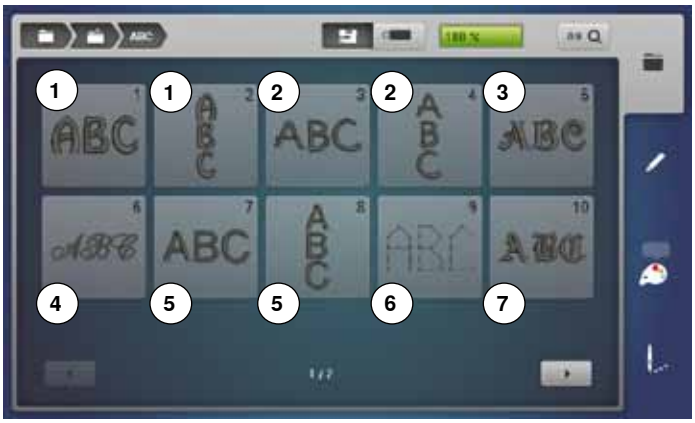
Motifs
To select built-in embroidery motifs.

Stitch patterns
To select integrated stitch patterns.

My Designs
To select saved embroidery motifs.

Embroidery Alphabet

- touch «Alphabet»-icon



- select the desired alphabet

1 Drifter
2 Childs Play
3 Victoria
4 Anniversary
5 Swiss Block
6 Quilt Block
7 Old English

8 Russian Textbook

Back to selection menu
Back to the «Selection»-display.

BERNINA motifs

- touch «Motif»-icon

- select the desired embroidery motif folder

1 Embellishment
2 Quilting
3 Borders and Lace
4 Asia
5 Flowers
6 Seasons
7 Children
8 Sports and Hobby
9 Animals
10 Flowers outline

BERNINA stitch patterns

- touch «Stitch pattern»- icon

- select the desired stitch pattern folder
- ► all stitch patterns contained in the sewing mode can also be embroidered

My Design

- touch «My Design»-icon

- touch the desired motif

Embroidery motif from USB-Stick (optional accessory)

- insert USB-Stick
- touch «USB-Stick»-icon

- touch the desired motif

«Edit»-display

1 Upper thread tension
2 Security program - needle
3 Presser foot Display/Presser foot selection
4 Select hoop
5 Security program - stitch plate
6 Feed dog position up/down
7 Bobbin status
8 Selection
9 Edit
10 Color numbers
11 Embroidery menu

Upper thread tension

- the current value is visible in the icon

Security Program

- touch «Needle»- or «Stitch plate»-icon
- touch desired «Needle»- and/or «Stitch plate»-icon
- if an inappropriate stitch plate is selected, a warning will appear in the icon

Presser foot Display/Presser foot selection
Embroidery foot No. 26 is displayed by default.
- touch the icon
- ► additional presser feet, such as Free motion couching foot No. 43, are displayed and can be selected
- attach and select the appropriate presser foot for the project

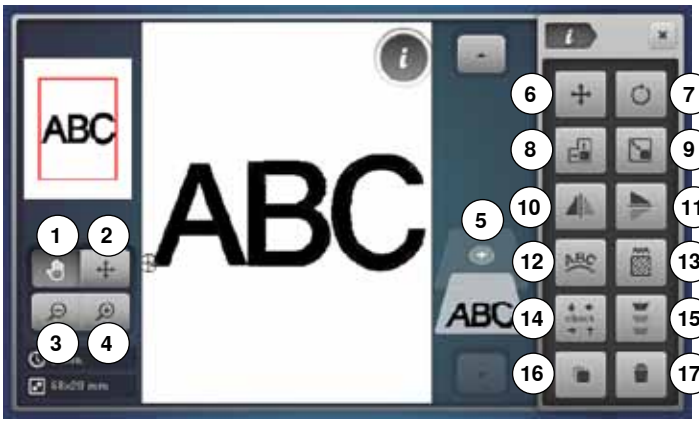
Select hoop
- ► the optimal hoop for the motif selected is displayed
- touch the icon
- ► the Display with the hoop options and additional related functions appears

Feed dog position up/down
The feed dog position is displayed down/up.
- touch the icon
- ► an animation shows how to lower/raise the feed dog

Bobbin filling
The remaining thread on the bobbin is displayed.
- touch the icon
- ► an animation shows how to thread the bobbin

Overview «Edit»-Display

- select alphabet or motif
- touch «i»-icon
- touch «zoom plus»- icon



Some functions feature tips for the operating of the stitch width and stitch length knobs.

Functions

1 Moving the view of the motif
2 Moving the view of the motif within the hoop
3 Zoom minus
4 Zoom plus
5 Adding embroidery motifs
6 Moving the motif
7 Rotating the motif
8 Altering the motif in height or width
9 Altering the motif proportionally
10 Mirror Image (left/right)
11 Mirror Image (down/up)
12 Altering characters
13 Altering stitch type
14 Check hoop and motif size
15 Endless Embroidery
16 Duplicating the motif
17 Deleting the motif

Generel functions

Information
- touch the icon
- ► another Display opens

Back
- touch the icon
- ► the previous Display appears
- ► any alterations are accepted

Confirming selection
- touch the icon

Alteration/Selection is activated or confirmed.

Leaving the active Display
- touch the icon
- ► the Display closes
- ► the previous Display appears

Moving the view of the motif
The view of the embroidery motif can be moved to any direction using finger or the Touchscreen pen directly in the Display. The embroidery position won't be changed.

Moving the view of the motif within the hoop
The embroidery motif can be moved within the hoop to any direction using finger or the Touchscreen pen directly in the Display.

Zoom plus
- touch icon 1-5x
- ► the view of the embroidery motif is enlarged by one step

Zoom minus
- touch icon 1-5x
- ► the view of the enlarged motif is reduced by one step

Adding embroidery motifs
- ► the overview of the previous Display is opened (Alphabet, Motifs, Stitch patterns, My Designs)
- select the desired motif

Moving the motif
Display of the alteration in 1/10 mm.
- turn stitch width knob
- ► the motif is moved in sideways (horizontally)
- turn stitch length knob
- ► the motif is moved lengthwise (vertically)
- turn stitch width and stitch length knob
- ► the motif is moved diagonally (the same number is in both icons)

By using the finger or the Touchscreen pen the motif can also be moved to any direction, directly in the Display.

Rotating the motif
Display of position in degrees (°).
- turn stitch width knob to the right
- ► the motif rotates to the right
- turn stitch width knob to the left
- ► the motif rotates to the left
- touch «+90»-icon 1-4x
- ► the motif rotates to the right in 90°-steps (0°, 90°, 180°, 270°, 360°)

Altering the motif in height or width
Displayed alteration in %.
- turn the stitch width knob
- ► the motif is altered horizontally
- turn the stitch length knob
- ► the motif is altered vertically

Altering the motif proportionally
Displayed alteration in %.
- turn stitch width knob to the right
- ► the motif is enlarged
- turn stitch width knob to the left
- ► the motif is reduced

Mirror Image left/right
The motif is mirrored horizontally (left/right).

Mirror Image down/up
The motif is mirrored vertically (down/up).

Altering characters
- turn stitch width knob
- ► the distance between the characters is altered in mm-steps
- turn stitch length knob
- ► the text is bent upwards or downwards

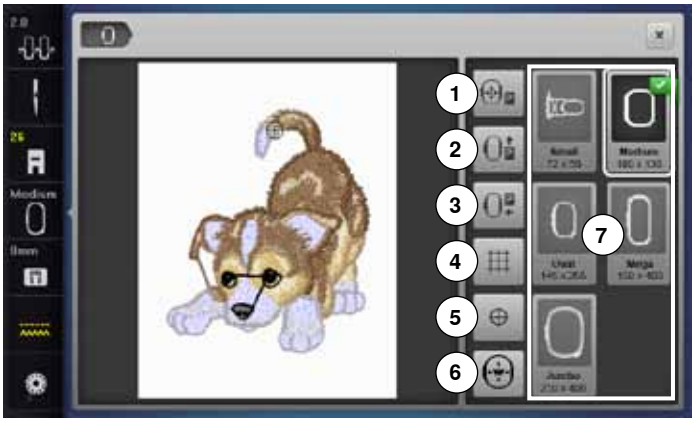
Altering stitch type
– satin stitches can be changed to step stitches (fill stitches)
– alter stitch density

Checking motif size
The motif size is traveled by the four arrow icons.
- touch «Motif center»-icon
- ► the needle moves to the center position of the motif
- turn the stitch width knob
- ► the motif is moved horizontally
- turn the stitch length knob
- ► the motif is moved vertically

Endless Embroidery
Opens to Display to combine a border.

Duplicating the motif
Active embroidery motif is duplicated.

Deleting the motif
Active embroidery motif is deleted.



- touch «Hoop size»-icon

Functions

1 Moving the hoop to the left
2 Moving the hoop to the back
3 Parking the module
4 Grid
5 Motif center
6 Virtual positioning
7 Select hoop/Display

Moving the hoop to the left

- ► the hoop moves to the center
- touch «Start-/Stop»-button
- ► the hoop moves back to the previous position

Moving the hoop to the back

- ► the hoop moves vertically to the far back

Better access for changing the bobbin.

Parking the embroidery module

- remove the hoop
- ► the embroidery arm travels horizontally to the left to the park position
- change to the sewing mode

Sewing is possible even with the embroidery module attached.

Grid

- touch the icon
- ► a large cursor shows the center of the hoop
- touch the icon again
- ► the grid appears
- the motif can be positioned more exactly

Motif center

The exact motif center is indicated by the cursor. The embroidery hoop is moved until the needle is positioned exactly in the center of the embroidery motif when the function «Virtual positioning» is activated.

Virtual positioning

Icon is inactive = if the motif is repositioned, the hoop does not move.

- touch the icon

If the motif is repositioned, the hoop simultaneously moves along with it to the new position.
This function is only visible when an embroidery hoop is attached.

Select hoop/Display

- ► the optimal hoop for the motif selected is displayed
- touch the icon
- ► the Display with the Select Hoop and further functions appear

Notes

Overview Embroidery menu

- press «Embroidery menu»-button

With some functions the instruction to use the knobs appears.

Functions

1 Color information
2 Selection
3 Basting
4 Moving the hoop
5 Edit
6 Thread breakage
7 Cutting connecting stitches
8 Color numbers
9 Embroidering motifs according to color sequence/Reducing color changes
10 Single/Multi-color motif
11 «Embroidery menu»-button

Color information
Information about the active color.
- touch the arrow icons up or down
- ► the current color is changed
- ► the hoop moves to the first stitch of the current color

The active color can also be embroidered individually or in another sequence.

Selection
- select new motif
- add motif
- save motif
- delete motif

Basting
- touch the icon
- ► the embroidery motif is outlined with a straight stitch
- touch icon again, the symbol changes
- ► the basting is now done along the hoop
- touch the icon again
- ► basting stitches are deactivated

Moving the hoop
If the fabric has to be re-hooped when stitching a large embroidery motif (e.g. lettering, borders etc.), the hoop has to be moved to the last stitch of the already embroidered part with the stitch width and stitch length knob.
- ► the movement is displayed in the icons

Edit
In this Display the motif can be edited.

Thread breakage
In the left Display the current color of the motif is shown in the normal size.
In the right Display the motif is enlarged.

Cutting connecting stitches
Generally, the function is active (yellow-framed).
Connecting stitches are automatically cut.
- touch the icon
- connecting stitches must be trimmed manually

Color numbers
Display of the motif color numbers.
- touch the icon
- ► Display providing the color information to the selected motif is opnened

Embroidering motifs according to color sequence
With the icon deactivated, the number and sequence of colors remain as initially set.

Reducing color changes
With the icon activated, the motif sections with identical colors are resequenced and color changes reduced.

Single/Multi-color motif
If the icon is active, the entire motif will be embroidered in one color (without stopping).
If the icon is inactive, the colors will be embroidered individually.

Embroidery menu
- ► the «Embroidery»-Display is opened
- ► the embroidery computer is ready to embroider

The embroidery computer must be started by pressing the «Start/Stop»-button on the headframe.

Overview Selection menu

- press «Selection»-button

Functions

1 Opening new motif
2 Adding motif
3 Saving motif
4 Deleting motif

Opening new motif

► the overview of the previous Display is opened (Alphabet, Motifs, Stitch patterns, My Designs)

- select the desired motif

Adding motif

► the overview of the previous Display is opened (Alphabet, Motifs, Stitch patterns, My Designs)

- select the desired motif

Saving motif

► the «Save»-display is opened

Deleting motifs

► the «Delete»-Display is opened

Overview Color Display

- press «Color number»-button

Changing the thread brand

- the Display showing different thread brands is opened

Embroidery motifs

Selecting an embroidery motif

Various embroidery motifs from the «Alphabets», «Motifs», «Stitch patterns» and «My Designs» files can be selected.

Alphabets

Selecting alphabet

- touch «Alphabet»-icon
- ► the various alphabet types are visible in the Display
- touch the desired «Alphabet»-icon

Entering/Correcting lettering

- ► the Display with the keyboard is opened
- the «ABC»-icon (upper case) is active automatically
- select desired characters

The space bar is at the bottom of the letter keys.

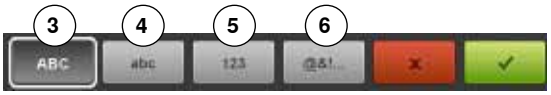
- ► letters appear in the text bar **1**
- touch ✔ to cofirm

Deleting lettering

- touch text bar **1**
- ► all entered text is deleted

Corrections

- touch icon **2**
- ► the entered text is deleted from right to left



3 «ABC» upper case characters (standard)
4 «abc» lower case characters
5 «1,2,3» numbers and mathematical characters
6 «@&!...» special characters

If all the lettering cannot be displayed in the hoop, rotate the lettering by 90°. There is then more room for the lettering in the entire length of the embroidery hoop.
If this does not help, decrease the lettering size or reduce the number of letters.

BERNINA embroidery motifs

All BERNINA embroidery motifs can either be embroidered as-is, or changed using the various functions offered by the embroidery computer.

Motif overview
- touch «Motif»-icon

The motifs are displayed in folders according to topics.
- select folder
- select the desired motif

Stitch patterns

The stitch patterns are in the same category folders found in the sewing mode.

Stitch pattern overview
- select folder

- select the desired stitch pattern

My Design

All embroidery designs can either be embroidered as-is, or edited using the various functions offered by the embroidery computer.

Motif Overview
- touch «My Design»-icon

- select the desired motif touching the icon or via «0-9»-icon

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Motifs in combination with functions

To activate the functions touch the appropriate icon and make adjustments with the stitch width and stitch length knobs.

Moving embroidery motifs

- touch «i»-icon
- touch «Move motif»-icon

- turn the stitch width knob
  - the embroidery motifs is moved in sideways (horizontally)
- turn the stitch length knob
  - the embroidery motif is moved vertically
  - the alteration is displayed in the icons in 1/10 mm
- turn stitch width and stitch length knob
  - if both icons display the same number, the motif has been moved diagonally
- touch the yellow-framed icon or the «Center»-icon
  - the motif is repositioned to the center of the hoop

Rotating embroidery motifs

- touch «i»-icon
- touch «Rotate motif»-icon

- turn stitch width knob to the right
  - the motif rotates to the right
- turn stitch width knob to the left
  - the motif rotates to the left
  - the postion is displayed in the icon in degrees (°)
- touch the yellow-framed icon
  - the position of the motif is reset to basic setting (0°/360°)
- touch «+90»-icon 1-4x
  - the motif rotates in 90°-steps (0°, 90°, 180°, 270°, 360°)

Altering embroidery motifs in height or width

- touch «i»-icon
- touch «Alter embroidery motif in height or width»-icon

- turn stitch width knob clockwise or counterclockwise
  - the embroidery motif is stretched or condensed horizontally
- turn stitch length knob clockwise or counterclockwise
  - the embroidery motif is stretched or condensed vertically
  - the alteration is displayed in percent (%) in the icons
- touch yellow-framed icon
  - the size of the motif is reset to basic setting

Altering embroidery motifs proportionally

- touch «i»-icon
- touch «Enlarging or reducing motif proportionally»-icon

- turn stitch width knob to the right
  - the motif is enlarged
- turn stitch width knob to the left
  - the motif is reduced
  - the alteration is displayed in the icon in percent (%)
- touch yellow-framed icon
  - the size of the motif is reset to basic setting

Mirroring motifs

- touch «i»-icon

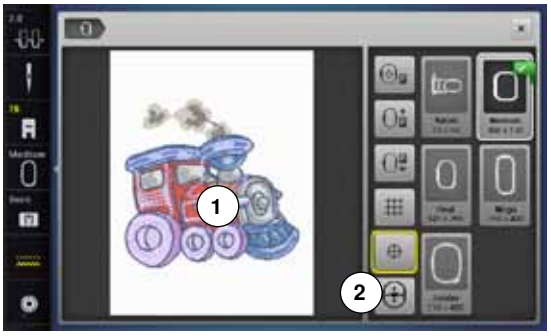
- touch «Mirror Image left/right»-icon
  - the motif will be mirrored horizontally
- touch «Mirror Image up/down»-icon
  - the motif will be mirrored vertically

Select hoop

- touch «Select hoop»-icon

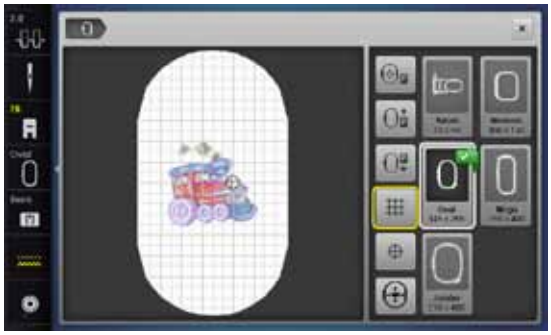
For best embroidery results always use the smallest hoop possible for the motif.

- select desired hoop
  - ► the selected hoop is framed in white and marked in the corner top right
- touch «Select hoop»-icon
  - ► the Display closes
  - ► the embroidery motif appears in the selected hoop



Motif Center

- touch «Select hoop»-icon
- touch «Motif center»-icon
  - ► center of motif **1** is shown in the the Display
  - ► the hoop is moved until the needle is exactly in the center of the motif, when the function «Virtual Positioning» **2** is activated
- touch the «Motif center»-icon again
  - ► the first stitch of the motif will be marked again in the Display



Grid

- touch «Select hoop»-icon
- touch «Grid»-icon
  - ► a big cursor indicates the center of the hoop
- touch «Grid»-icon again
  - ► grid visual appears on screen for ease in positioning embroidery motifs
- touch «Grid»-icon again
  - ► the grid disappears

Absolute embroidery check

By using the Touchscreen pen any position within the motif can be selected directly in the «Edit»-Display.

- select and edit motif
- attach the respective hoop

The «Motif center»-icon must be deactivated in order to utilize Absolute check.

- check the motif within the hoop by using the Touchscreen pen
- select any point in the motif with the Touchscreen pen
- ► the cursor (marking the needle position) moves to the selected area
- ► if the icon «Virtual positioning» **1** is activated (yellow-framed), the hoop is moved to position the needle over the selected area

If the thread breaks, place the Touchscreen pen on the area of the Display where the thread broke and the hoop moves to that area.

Checking the motif size

The «Check motif size»-function reads the attached hoop size and stitching area:

- touch «i»-icon
- touch «Check»-icon
- select the four corners using the arrow icons
- touch «Motif center»-icon
- ► the needle moves to the center position of the motif
- turn the stitch width knob to the left or to the right
- ► the embroidery motif is moved horizontally
- turn the stitch length knob to the left or to the right
- ► the embroidery motif is moved vertically

Zoom

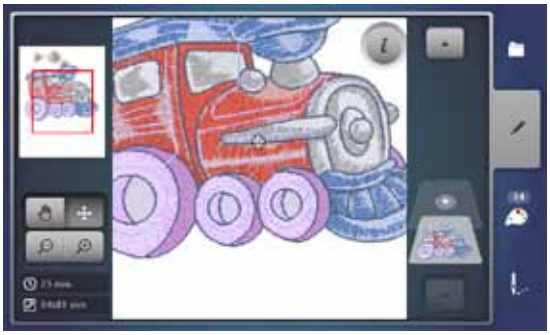
- touch «Zoom+»-icon 1-5x

- the view of the motif is enlarged by one step

- touch «Zoom-»-icon 1-5x
- the enlarged view of the motif is scaled-down by one step

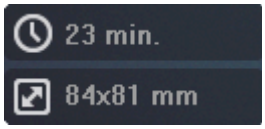
Moving the embroidery motif

- touch «Move»-icon



- the position of the motif can be moved to any direction using finger or the Touchscreen pen

Motif size and embroidery time

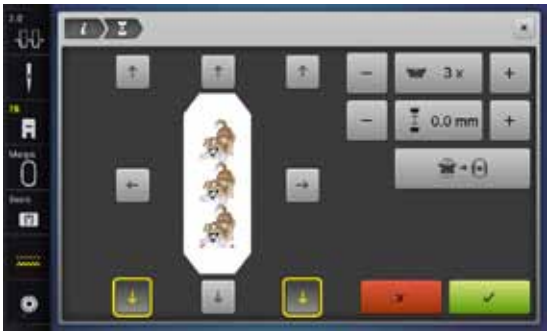


The «Edit»-Display at the bottom left shows the embroidery time in minutes, width and height of the motif are displayed in mm.

Endless Embroidery

When embroidering a border, it is advantageous to use the Mega or Jumbo Hoop. The fabric requires less rehooping than with the Oval Hoop.
We recommend marking reference lines on the fabric, and using the template when hooping and rehooping. Here, the reference lines must run parallel to the lines on the template.

- select desired motif
- touch «i»-icon
- touch «Endless embroidery»-icon **1**



- the embroidery motif is duplicated as many times as possible to fill the hoop
- the reference points - necessary for placement when rehooping the fabric - are also stitched out
- the arrow buttons may be used to add additional reference points in different directions

- via the stitch width knob or the «+» or «-»-icons the number of motifs can be increased or reduced
- touch the field in the center
- back to starting position

- via the stitch length knob or the «+» or «-»-icons the distance between the motifs can be altered
- Display is in mm
- touch the field in the center
- back to starting position

- should more motifs be entered manually than will fit in the hoop, the hoop appears in red
- use the «Fit to hoop» function to automatically adjust the size of the motifs so they all fit in the hoop

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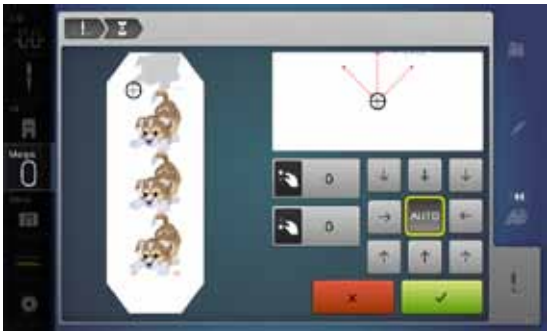
- touch ✔ to confirm
- ► the «Edit»-Display appears
- touch «i»-icon
- ► the function overview closes
- change to the Embroidery Display and embroider the border

In the embroidery menu it's possible to change the embroidery speed.

- after the reference points are stitched, touch the «Endless embroidery» icon

- ► an animation shows how to rehoop the material
- rehoop the material so that the embroidered reference points are in the upper part of the embroidery area in the hoop
- when rehooping, make sure that the reference points do not lie too near the edge of the hoop, or they will be out of the stitching area (at at least 3 cm from the top edge of the hoop)
- attach the embroidery hoop
- touch ✔



- ► the hoop is moved near the last stitch
- using the stitch width and/or the stitch length knob, move the hoop until the needle is over the last stitch
- touch ✔ to change to the Embroidery Display and resume embroidering
- repeat these steps until the border is the desired length
- ► «Auto» is activ, the hoop moves automatically to the last reference point
- the arrow buttons can be used to specify on which side of the embroidered section the next one is to be joined
- hoop the material accordingly

Combinations

Creating combinations

- select the desired motif from the selection menu of the embroidery computer
- ► the motif **1** appears in the «Edit»-Display

Adding embroidery motifs
- touch «Add embroidery motif»-icon or
- press «Selection»-button
- touch «Add motif»-icon
- select the desired motif or alphabet character from the selection menu
- ► the selected motif **2** is added

Duplicating a motif
- touch «i»-icon
- touch «Duplicate motif»-icon
- ► the active motif **3** is duplicated **4**

Duplicating a combination
- activate a combination **5**
- ► touch «i»-icon
- touch «Duplicate motif»-icon
- ► the active combination **6+7** is duplicated **8**

Within in a duplicated combination the single motifs cannot be selected individually, contrary to the initial combination.

Lettering

Lettering (e.g. words) can be combined with other alphabet characters or motifs. The individual words (e.g. Made to create) are individually combined by the line and positioned individually.

Combining

- touch «Alphabet»-icon
- ► the various alphabet types are visible in the Display
- touch desired «Alphabet»-icon
- ► the Display with keyboard appears
- e.g. enter Made to

Select the characters using the Lower/Upper Case icon.

- place the space with the bar under the keyboard
- touch ✔ to confirm the combined characters
- ► the lettering appears in the «Edit»-display

Positioning

- touch «Select hoop»- icon
- select medium hoop
- touch «Select hoop»-icon again
- touch «i»-icon
- touch «Rotate motif»-icon
- touch «+90»-icon
- ► the text is rotated by 90°
- touch «i»-icon above the function Dislay
- ► the function overview appears again
- touch «Move motif»-icon
- position the text in the Display using the knobs, the touch pen or the finger

The outline of the hoop is highlighted in red if a stitch of the motif is positioned outside the embroidery area.

Further text lines

- press «Selection»-button
- touch «Add motif»-icon

Combine and position individually the rest of the text.

- touch «Select hoop»-icon
- activate the grid, see page **150**
- ► use the grid lines to easily and accurately position lines of text

Lettering and embroidery motifs

Depending on the application, the characters are added after an embroidery motif is selected or the characters are combined first and then added to the motif (e.g. embellished lettering).

Combining

- select desired embroidery motif
  - ► the motif appears in the «Edit»-display
- press «Selection»-button
- touch «Add motif»-icon
- touch the dark «Embroidery computer»-icon at the top of the Display
  - ► selection menu appears
- select desired alphabet
  - ► the Display with keyboard appears
- enter text, e.g. Flowers

Select the characters using the Lower/Upper Case icon.

- touch ✔ to confirm the combined characters
  - ► the text appears above the motif in the «Edit»-display

Adjusting text to motif

- touch «i»-icon
- touch «Rescale motif»-icon
- adjusting text to motif
- touch «i»-icon above the function Display
- touch «Move motif»-icon
- position the text as desired

Lettering Manipulation

- touch «i»-icon
- touch «Letter manipulation»-icon
- turn stitch length knob to the left
  - ► the lettering is bent upwards

Deleting stitch patterns/individual characters/text

Single parts of combinations which have not been saved yet can be deleted as follows:

- select the part of the combination to be deleted
- touch «i»-icon
- touch «Delete»-icon
- touch «ok» to confirm or
- select the part of the combination to be deleted using the finger, keep it pressed and move to the right
- remove the finger from the Display
- touch «ok» to confirm
  - ► the selected part is deleted

Altering motif features

- touch «i»-icon
- touch «Alter motif features»-icon

Altering stitch type.
Altering stitch density.

- touch «Change stitch type»-icon

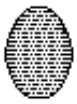
► the basic setting of the step stitch is activated

If the motif is enlarged substantially, long satin stitches occur, tunneling the fabric. In this case, it is recommended to switch to the step stitch fill.

Fill stitch types

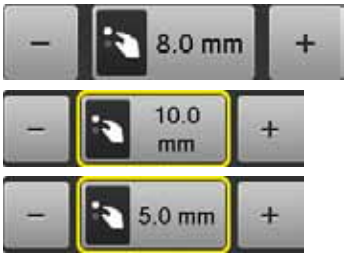
The embroidery motifs are filled with satin or step stitches.

Satin stitch
The needle moves left to right and vice versa.



Step stitch (Fill stitch)
The needle stitches in straight rows at regular intervals.

- touch «Change stitch type»-icon

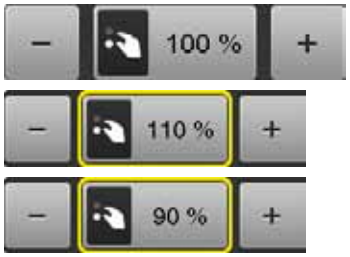


Changing stitch type
The satin stitch fill changes to a maximum of 8 mm long step stitches fill (basic setting).
- ► touch «+»/«-»-icon or turn stitch width knob to the left or to the right
- ► maximum step stitch length is increased/decreased

The maximal step stitch length is 12.7 mm and the minimal length 0.5 mm.
- touch ✔ - icon
- chosen step stitch length is saved and the «Edit»-Display appears

Back to basic settings
- touch yellow-framed icon
- ► the basic setting (8 mm) is activated

Back to satin stitch
- touch «Change stitch type»-icon again
- ► the motif is filled with satin stitches again



Altering stitch density
- touch «+»/«-»-icon or turn stitch length knob to the left or to the right
- ► the stitch density is increased (more stitches)/decreased (less stitches)

The maximum stitch density is 300% and the minimum 25%.
- touch ✔ - icon
- ► chosen stitch density is saved and «Edit»-display appears

Back to basic settings
- touch the yellow-framed icon
- ► the basic setting (100%) of the motif is activated again

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Motif colors

Reallocating motif colors

- touch «Color number»-icon in the Display
- scroll with the arrow icons, if necessary, until the color to be changed appears
- select the color to be changed (e.g. 1)

- touch «Thread color»-icon
- use the arrow icons beneath the thread colors to scroll until the desired color appears
- select the desired color or
- touch «0-9»-icon and
- enter the color number via the keyboard
- ► the new color is reallocated
- ► the altered color is displayed
- touch «Back»-icon **1**
- ► the color overview of the selected embroidery motif appears

Changing the thread brand

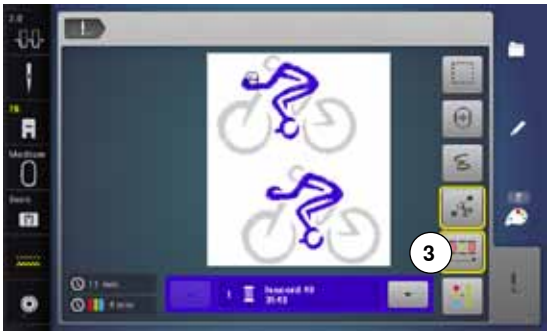
- touch «Thread color»-icon
- scroll with the arrow icons left or right until the desired thread brand appears
- touch «Thread brand»-icon **2**
- ► the thread brand in the Display changes and the new thread details appear
- touch «Back»-icon **1**
- ► the altered thread details are displayed

Different thread brands can be assigned to the motif.

- scroll to the desired thread brand
- do **not** touch the «Thread brand»-icon
- scroll to the desired color
- touch the icon

Embroidering the motif by color

- press «Embroidery menu»-button
- ► «Reduce color changes»-icon is inactive (standard, gray)
- ► the colors of a motif are not reduced, the embroidery sequence remains as set originally. The number of color changes **2** remains as it is



Reducing color changes

- press «Embroidery menu»-button
- touch «Reduce color changes»-icon
- ► identical colors are resequenced and combined to form «color blocks». This reduces the number of color changes **3** to a minimum
- ► when the embroidery motifs overlap, the color change **cannot** be reduced

Embroidering motifs in one color

- press «Embroidery menu»-button
- touch «Single/Multi-Color Motif»-icon
- ► the function is activated
- ► the embroidery computer embroiders the complete motif and stops when finished

Embroidering lettering in multi colors

Lettering is always displayed in one color («Single/Multi-Color Motif»-icon is not available). To embroider each letter of a word or each word of a word combination in a different color, each letter or word must be programmed and placed separately.

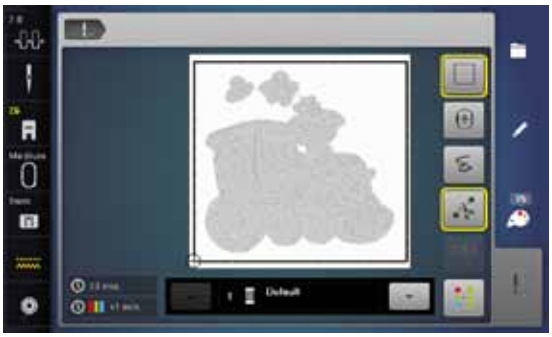
- ► the embroidery computer stops after each letter or word
- the thread color can be changed
- ► the Embroidery time for each color is displayed

Embroidering lettering in one color

- touch the now available «Single/Multi-Color Motif»-icon
- ► the complete lettering combination is embroidered in one color

Basting

- press «Embroidery menu»-button
- touch «Basting»-icon



The embroidery motif is outlined with a straight stitch.
This serves as an additional anchoring of the project so that the fabric and stabilizer are adhered.

- touch «Basting»-icon again
- ► the symbol changes

The basting is now done along the hoop.

Deactivating basting

- touch the icon again
- ► basting stitches are deactivated

This function remains active even if a new motif is selected.

Importing stitch patterns from the sewing mode

Stitch patterns or stitch pattern combinations can be imported from the sewing mode to the embroidery mode and they can be edited like embroidery motifs. Therefore e.g. endless embroidery patterns are combined, duplicated, mirrored etc. quickly and easily. Finally, these combinations can be saved as embroidery motifs in the folder «My Design».

When an imported stitch pattern is not saved in the embroidery mode, it will be overwritten by the next selected the stitch pattern.

Selecting stitch patterns in the sewing mode

- select the stitch pattern No. 201 in the category 200
- touch the «Home»-button
- touch «Embroidery mode»-icon

Selecting stitch patterns in the embroidery mode

- touch «My Design»-icon **1**

- ► the stitch pattern has been imported to the folder «My Design»
- select the stitch pattern

- ► the stitch pattern appears in the «Edit»-display
- ► the stitch pattern can be edited by any available functions and embroidered like an embroidery motif
- ► to remain the stitch pattern in the embroidery mode, it must be saved, see page **173**

Saving embroidery motifs

Embroidery motifs from the embroidery computer, the USB stick or designs created in the BERNINA Embroidery Software can be altered in different ways, then saved.
Embroidery motifs can either be saved in the embroidery computer memory or on an USB Stick.

Embroidery motifs which were altered in size and saved are regarded as new motifs when they are recalled. That is why all percentages say 100%, and the former alteration can no longer be seen.

Memory Embroidery computer

- select desired embroidery motif
- alter if desired

- press «Selection»-button
- touch «Save»-icon **1**

The motif to be saved is displayed in a yellow frame.
- ► «Embroidery computer»-icon is active
- ► the «My Designs» folder is opened automatically
- ► the system memory capacity (free capacity) is displayed in percent (%) in the green bar
- select the motif to be saved
- ► the embroidery motif is saved in numerical order in the «My Designs» folder
- ► the «Edit»-display appears again

USB-Stick

The motif to be saved is displayed in a yellow frame.
- insert USB Stick
- touch «USB-Stick»-icon
- ► the system memory capacity (free capacity) is displayed in percent (%) in the green bar
- select the motif to be saved
- ► the motif is saved on the stick

Empty USB sticks are available as optional accessory at the BERNINA-dealer.
Sticks of other brands are unlikely to be supported, especially sticks providing a large memory capacity.

Overwriting motifs

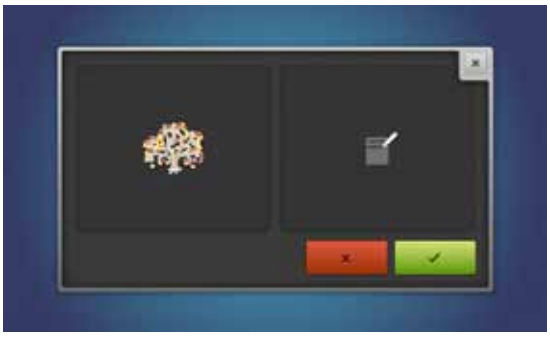
Saved motifs in the memory or on an USB stick can be overwritten directly by another motif.

- select the desired embroidery motif

- insert USB stick
- press «Selection»-button
- touch «Save»-icon

The motif to be saved is displayed in a yellow frame.

- touch «Embroidery computer»-icon or «USB-Stick»-icon
- select the motif to be overwritten



- touch ✔ to confirm

► the motif is now saved at the previously selected position

Deleting saved single motif

- insert USB stick
- press «Selection»-button
- touch «Delete»-icon
- touch «USB-Stick»-icon or
- touch «Embroidery computer»-icon

- select the motif to be deleted

- touch ✔ to confirm
- ► the motif is deleted

Cancelling deleting

- touch ✘
- ► the deleting is cancelled, the previous screen appears

Deleting all saved motifs

It is possible to delete the content of the folder «My Designs» or the USB stick all at once.

- press «Setup»-button
- touch «Sewing computer settings»-icon
- touch «Reset»-icon

When embroidering there are two options to choose from:

1 My Design
2 USB stick (the stick must be inserted)

- touch the button of which the data should be deleted

- touch ✔ to confirm

► the data is deleted

Cancelling deleting

- touch ✘

► the deleting is cancelled, the previous screen appears

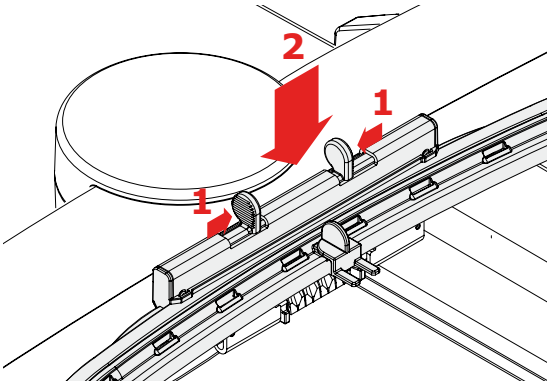
Starting to embroider

Select hoop

- select embroidery motif
  - ► the selected motif is displayed in the optimal (the smallest) hoop
  - ► the «Select hoop»-icon **1** displays the recommended hoop
- attach the recommended hoop

Attaching the embroidery hoop

- raise needle and embroidery foot
- hold the hoop with the right side of the fabric up and the attaching mechanism to the left



Attach the hoop to the embroidery arm

- guide the hoop underneath the embroidery foot
- press both of the attaching mechanisms of the hoop toward each other
- position the center points of the hoop (small attachment clamps) over the bracket of the embroidery arm
- press down until it clicks in position
- release the attaching mechanism of the hoop

Removing the hoop

- press the attaching mechanisms of the hoop toward each other
- lift the hoop up to remove

- press «Embroidery menu»-button or «Start/Stop»-button on the headframe
  - ► the hoop moves
  - ► the hoop is read

Calibrating the embroidery hoop see page **48**.

As soon the «Embroidery menu»-button has been pressed, made alterationen will not be visible anymore when going back to the «Edit»-display. The «Information»-icon turns blue again, the function icons are no longer yellow-framed and the setting is at 100%.

Embroidery menu

- embroidery menu is opened
- the motif is ready for embroidering

Embroidering using the «Start/Stop»-button on the headframe

- press the «Start/Stop»-button on the headframe, until the embroidery computer starts
- the embroidery computer sews approximately 7 stitches and stops automatically
- a Display indicates that the thread tail has to be cut at the beginning of the motif
- raise the presser foot
- cut the thread tail at the beginning of the motif
- press the «Start/Stop»-button on the headframe and resume embroidering

Interrupting the process

- press «Start/Stop»-button on the headframe
- the embroidery computer stops

Completing the color

- press «Start/Stop»-button on the headframe
- the embroidery computer embroiders all the sections in the color activated
- the embroidery computer stops automatically when complete
- both threads are automatically cut

Color change

- the emboidery computer switches automatically to the next color
- change color of the upper thread accordingly
- embroider with the new color

«Embroidery»-Display

- after starting the motif the «Embroidery»-Display appears

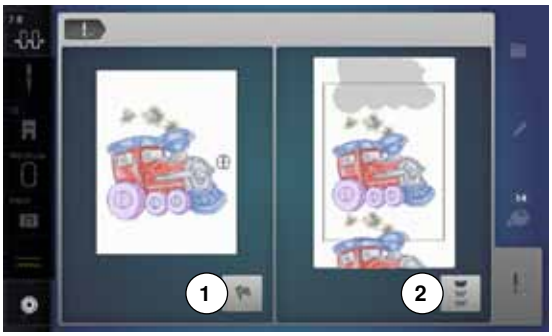
Embroidery speed

To guarantee the best embroidery quality the speed when embroidering is reduced according to the embroidery position. You have the options to choose from optimal and maximum speed. Standard = optimal.

- touch «Embroidery speed»-icon
- the maximum embroidery speed-mode is activated

Please note that the quality of the embroidered motif may not be optimal at maximum speed.

- by touching «Embroidery speed»-icon again or by switching off or on the embroidery computer, the optimum embroidery speed is activated again



End of embroidery
- after completing the motif touch the icon **1** to finish the embroidery process, or touch «Endless Embroidery»-icon **2** again to repeat the border embroidery

Embroidering with foot control

When embroidering with the foot control always keep it depressed.
- press the foot control
- ► the embroidery computer sews approximately 7 stitches and stops automatically
- ► a Display indicates that the thread tail has to be cut at the beginning of the motif
- release the foot control
- raise the presser foot
- cut the thread tail at the beginning of motif
- press the foot control and continue embroidering

Interrupting the process
- release the foot control
- ► the embroidery computer stops

Completing the color
- press the foot control
- ► the embroidery computer embroiders all the sections in the color activated
- ► the embroidery computer stops automatically when complete
- ► both threads are automatically cut

Color change
- ► the emboidery computer switches automatically to the next color
- change color of the upper thread accordingly
- embroider with the new color

«Embroidery»-Display
- ► after starting the motif the «Embroidery»-Display appears

Embroidering via the foot control is recommended to embroider a small sequence.

Thread breakage when embroidering

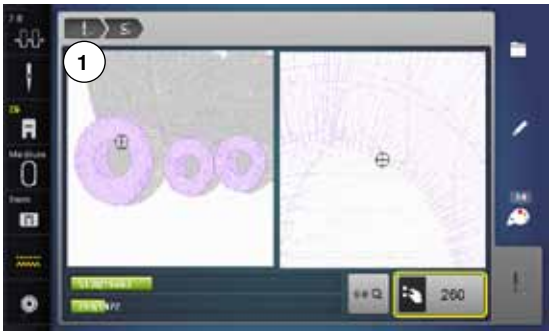
The upper or lower thread may occasionally run out or break when you are embroidering. When this happens, the embroidery computer stops automatically, provided that the thread and bobbin indicators are activated in the setup program.

Upper or lower thread breaks

- the embroidery computer stops automatically
- an animation is displayed
- check upper thread
- rethread needle
- check lower thread
- refill or rethread bobbin

Embroidery sequence control when thread breaks

- touch «Thread breakage»-icon

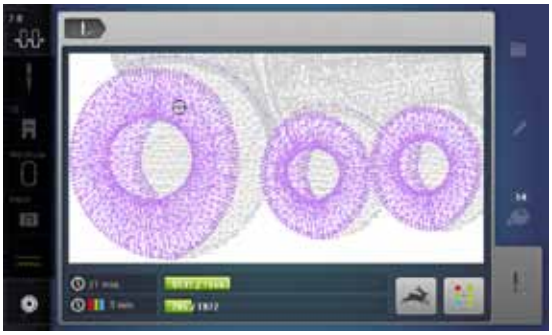


In the left part of the Display the current color of the motif is displayed in normal size and in the right part the view is enlarged. This makes it easier to check the embroidery sequence.

- the message to operate the stitch width and stitch length knobs appears
- turn the knobs to the left or to the right
- the hoop moves along the embroidery sequence backwards or forwards
- turn the stitch width knob slowly
- the hoop is moved stitch by stitch
- turn the stitch length knob slowly
- the hoop is moved in big steps
- the number in the yellow-framed icon indicates the current position within the motif by stitch number
- via the «0-9»-icon a position can be entered directly
- position the needle back far enough so that it will resume stitching several stitches before the thread breakage

Returning to original position

- touch «Back»-icon **1**
- the Display closes



Resuming embroidery

- press «Start/Stop»-button or the foot control

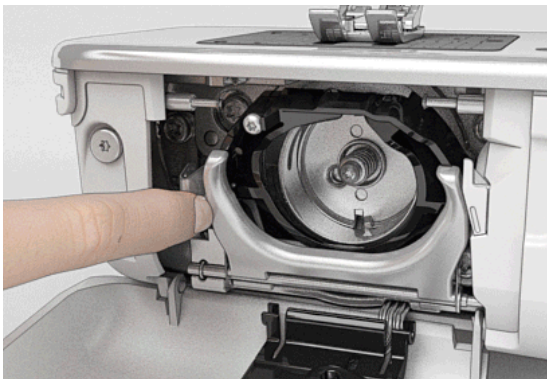
Cleaning

ATTENTION!
Disconnect plug from the socket before cleaning or lubricating! Never use alcohol, petrol, white spirit or any type of solvent to clean the sewing computer!

Cleaning the Display and the sewing computer
Wipe with a soft, damp cloth.

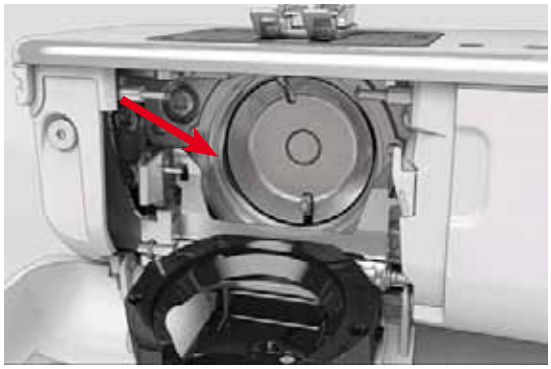
Feed dog area
Clean the sewing computer after every use - remove any lint from under the stitch plate and in the hook area.

- turn power switch to «0» (off)
- remove plug from electrical outlet
- remove presser foot and needle
- open the bobbin door
- press the stitch plate down at the right back corner until it flips up
- remove the stitch plate
- clean the area with the lint brush
- replace the stitch plate



Cleaning the hook

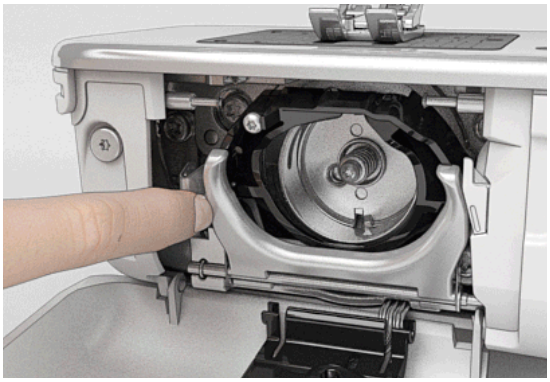
- turn power switch to «0» (off)
- remove plug from electrical outlet
- remove bobbin case
- push release lever to the left
- flap down the fastening bracket along with the black hook race cover
- remove the hook



- clean the hook race with a brush; do not use any pointed objects
- hold the hook at the pin in the center with two fingers
- lead the hook, lower edge ahead, angular top-down behind the hook race cover
- position the hook with the two lugs meeting the openings in the hook, the colored mark on the hook driver should be visible through the hole in the hook
- insert the hook
- ► the hook is magnetic and therefore fastened to correct position
- close the hook race cover and the fastening bracket, release bracket must engage
- as a check, turn the handwheel
- insert the bobbin case

Lubricating

- turn power switch to «0» (off)
- remove plug from electrical outlet
- remove the stitch plate
- refill the oil depot using BERNINA-oil
- replace the stitch plate



- remove bobbin case
- press release bracket to the left
- flap down the fastening bracket along with the black hook race cover
- remove the hook

- fill as much BERNINA-oil into both oil depots so that the felts are damp
- insert the hook
- close hook race cover and fastening bracket, release bracket must engage
- as a check, turn the handwheel
- insert the bobbin case
- close the bobbin cover

ATTENTION!
To provide a good sewing quality, the surface of the hook sleeve (marked in red) MUST remain free of oil. Otherwise clean with a cloth.

Troubleshooting

In most cases you will be able to identify and remedy faults by checking the following.

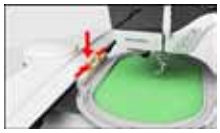
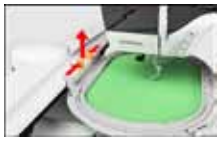
Check if:
- the upper and lower threads are threaded correctly
- the needle is inserted correctly
- the needle size is correct - check the needle/thread table page **15**
- the needle tip and shaft are undamaged
- the sewing computer is clean - brush out any thread lint
- the hook race is clean
- any threads are trapped between the tension discs or under the bobbin case spring

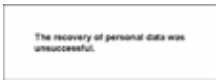
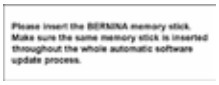
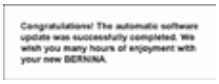
Fault	Cause	Repair
Uneven stitch formation	– upper thread too tight/too slack – needle blunt or bent – poor quality needle – poor quality thread – needle/thread combination is incorrect – incorrectly threaded	• reduce/increase upper thread tension • use new BERNINA quality needle • use new BERNINA quality needle • use quality thread (Isacord, Mettler, Gütermann etc.) • match the needle to the thread size • check upper and lower thread
Skipped stitches	– incorrect needle system – needle bent or blunt – poor quality needle – needle inserted incorrectly – incorrect needle point	• use needle system 130/705H • use new BERNINA quality needle • use new BERNINA quality needle • insert needle as far up as it will go • match the needle point to the texture of the material
Faulty stitching	– remnants of thread between the tension discs – incorrectly threaded – remnants of thread under the bobbin case spring	• fold a piece of thin material and slide the folded edge (not the raw edges) between the thread tension discs, moving the material back and forth to clean the right and left side of the thread tension • check upper and lower thread • carefully remove any thread remnants from under the spring
Thread is caught in the area of the take-up lever	– upper thread breaks 	If the upper thread breaks and the thread is trapped in the area of the take-up lever, proceed as follows: • power switch to «0» • remove the screw **1** on the headframe with the angular Torx wrench • pull the headframe at the bottom slighty forward, flip it upwards a bit and remove it • remove thread remnants • attach headframe and retighten screw
Upper thread breaks	– incorrect needle/thread combination – upper thread tension too tight – incorrectly threaded – poor-quality or old thread – stitch plate or hook tip damaged	• match the needle to the thread size • reduce the upper thread tension • check upper threading • use quality thread (Isacord, Mettler, Gütermann etc.) • take the sewing computer to the nearest authorized BERNINA dealer
Lower thread breaks	– lower thread tension too tight – stitch hole in the stitch plate has been damaged – needle blunt or bent	• increase the upper thread tension • take the sewing computer to the nearest authorized BERNINA dealer • use a new needle

Fault	Cause	Repair
Needle breaks	– needle not correctly inserted – fabric was pulled – fabric was pushed when using thick material – poor quality thread with knots	• tighten the needle clamp screw • do not pull the fabric during sewing • use the correct presser foot for thick material (e.g. Jeans foot No. 8) use height compensating tool when sewing over a thick seam • use quality thread (Isacord, Mettler, Gütermann etc.) • always remove the hook after a needle breakage and check the magnetic back of the hook for broken off needle parts
Display is inactive	– calibration data incorrect – eco-function active	• re-calibrate the Display in the Setup Program • turn off eco function
Stitch width not adjustable	– setting activated in the security program	• deactivate setting
Sewing-/ Embroidery computer	– sewing-/embroidery computer fails to run or runs slowly – turn the power switch to «0»	• check the setting in the Setup Program • alter the speed control • place the sewing-/embroidery computer in a warm room one hour before use • turn the power switch to «I» • take the sewing-/embroidery computer to the nearest authorized BERNINA dealer
LED sewing light does not light up at «Start-/Stop»-button	– LED defective	• take the sewing-/embroidery computer to the nearest authorized BERNINA dealer
LED sewing light and free-arm light do not light up	– LED defective – deactivated in the Setup Program	• take the sewing-/embroidery computer to the nearest authorized BERNINA dealer • activate in the Setup Program
Upper thread indicator does not respond	– not activated in the Setup Program	• activate in the Setup Program
Lower thread indicator does not respond	– not activated in the Setup Program	• activate in the Setup Program
Lower thread indicator reacts	– thread used/broken	• wind thread and thread
Update error	– USB stick is not recognized – Update process is blocked (hourglass stays on Display) – Update-data aren't identified	• use a BERNINA USB stick • remove the stick and turn the sewing computer off and on again. Proceed with the update as indicated by the message • don't save update-data in a folder • unzip update-data

General Messages	Explanation	Repair
Sewing-/ Embroidery computer 	– deleting or overwriting data	• touch ✔ to confirm or touch ✘ to cancel

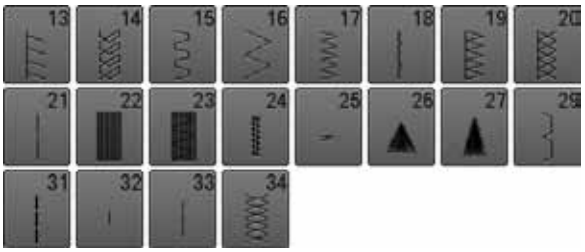
General Messages	Explanation	Repair
	– Stitch number not known in direct entry	• check command entered and enter a new number
	– Stitch selection not possible in the combination mode	• make another selection
	– lower feed dog	• press «Feed dog»-button. Feed dog is lowered
	– incorrect needle for the stitch plate selected	• check settings in securing programs
	– needle is not in the highest position	• turn the handwheel
	– opper thread run out	• attach new upper thread spool and thread
	– lower thread indicator has reacted	• check lower thread and wind if necessary
	– main motor is not running	• check hook system. Remove any thread lint from the hook area/bobbin case • remove the hook and check the magnetic back of the hook for broken off needle parts
	– incorrect presser foot for BERNINA Dual Feed switched on	• attach a «D» presser foot
	– winding a bobbin	• wind bobbin as shown in the animations
	– too much fabric under presser foot	• reduce amount of fabric under presser foot

General Messages	Explanation	Repair
	– contact between embroidery computer and embroidery module is interrupted due to vibrations	• reconnect embroidery module and switch off and on the embroidery computer
 	– needle position doesn't correspond to center of hoop	• calibrate according to User Instructions page **48**
	– broidery module has not been attached yet – embroidery module has not been correctly attached	• connect the embroidery module to the sewing computer • check the embroidery module connection
	– no embroidery hoop attached	• attach the hoop
	– embroidery hoop attached	• remove the hoop
	– the hoop moves	• touch ✔ to confirm
 	– the embroidery process cannot proceed	• move Mega-Hoop to center position and resume embroidering
	– embroidery motif is partly outside the hoop	• reposition the motif. The area within the hoop can be embroidered
	– embroidery motif is too large	• reduce the motif size or attach a bigger hoop. The area within the hoop can be embroidered

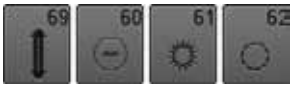
General Messages	Explanation	Repair
	– less free space on the USB stick	• delete data from USB stick
	– no personal data available on the USB stick	• check that the USB stick is inserted correctly and re-start the sewing computer
	– during the update process personal data was not saved on the USB stick	• the software was correctly updated. Personal data could not be recovered
	– BERNINA USB stick is not inserted	• insert BERNINA USB stick and do not remove during the update process
	– new SW Version is not available on the stick	• save the new SW Version on the BERNINA USB stick and start the update again
	– Update successful	• the sewing-/embroidery computer has been provided with the latest software version
	– the sewing computer must be cleaned/ lubricated	• when this message appears, the sewing computer must be cleaned/lubricated. This ensures proper functioning and a long operational life span of the sewing computer
	– it is time for the regular maintenance. Please contact your BERNINA dealer or your BERNINA service address	• the sewing-/embroidery computer must be taken to an authorised BERNINA dealer/servicing shop. The announcement appears after completing the programmed service interval. The message can be deleted temporarily by touching the field «ESC» but will reappear when the sewing-/ embroidery computer is next restarted. Having cleared the announcement via the «ESC» three times, the announcement will appear as recently as the next service interval has been completed. Having your sewing/embroidery computer cleaned and serviced properly at the appropriate times ensures its proper functioning and long service life. Failure to do so may adversely affect service life and limit the guarantee. The charge for servicing is nationally regulated – consult your dealer or servicing shop for details

Overview Stitch patterns

Practical stitches

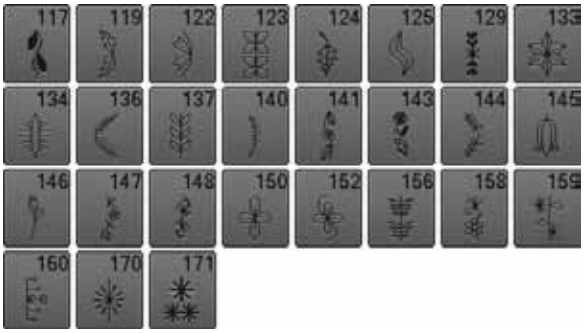


Buttonholes



Decorative stitches

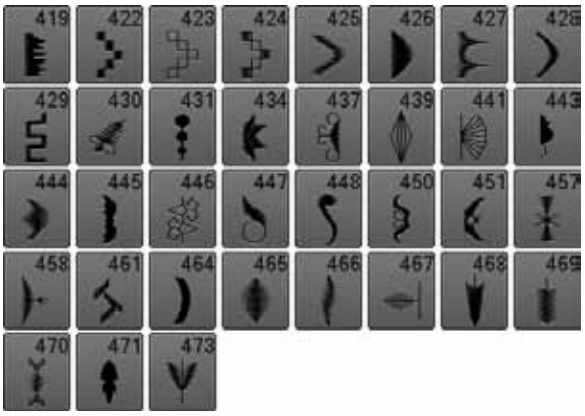
Florals



Florals Sideways Motion

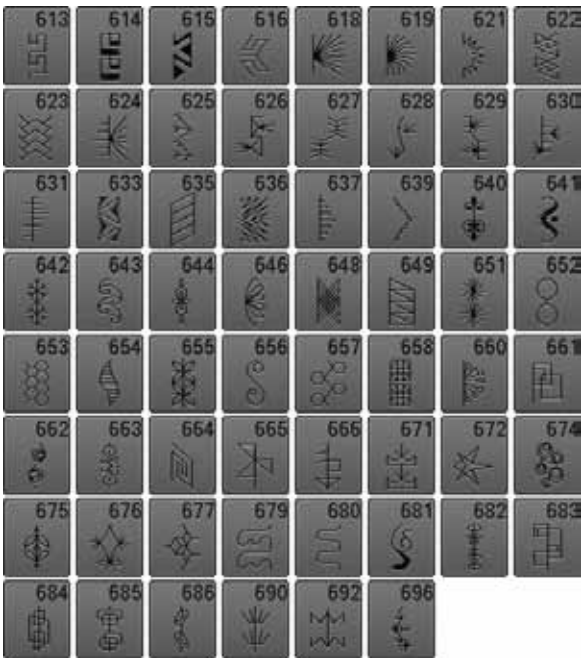
Cross stitches

Satin stitches

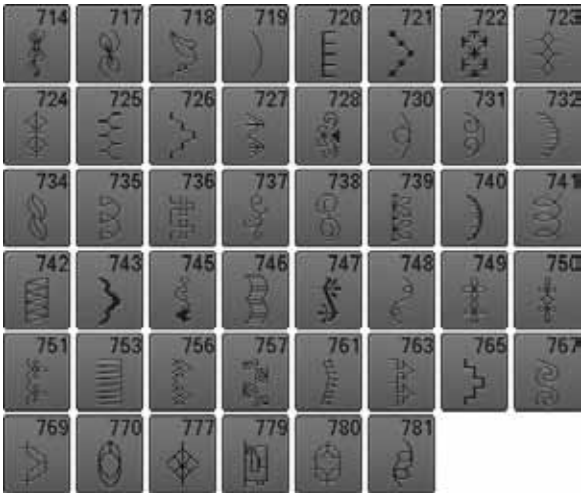


Satin Stitches Sideways Motion

Ornamental stitches



Heirloom stitches



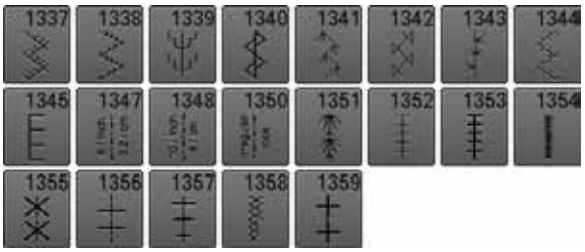
Heirloom Sideways Motion

Novelty Stitches

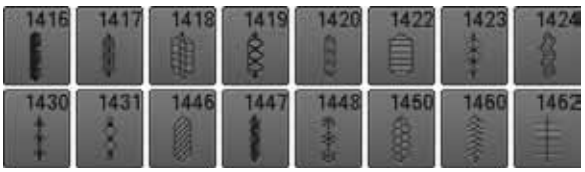
Novelty Sideways Motion

Filigree Stitches Sideways Motion

Quilt stitches



Tapering Stitches



Skyline Stitches

International

Alphabets

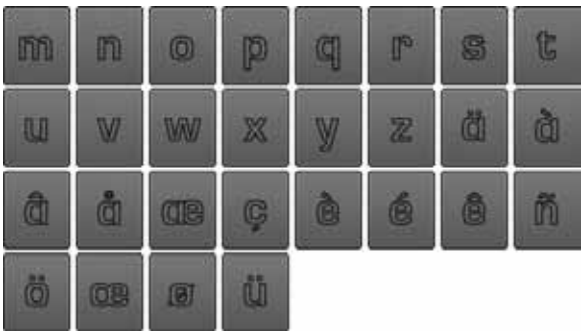
Block alphabet

M N O P Q R S T
U V W X Y Z Ä À
Â Å Æ Ç È É Ê Ñ
Ö Œ Ø Ü 1 2 3 4
5 6 7 8 9 0 _ -
• ´ ! + = & ÷ ?
% @ ( ) [ ]

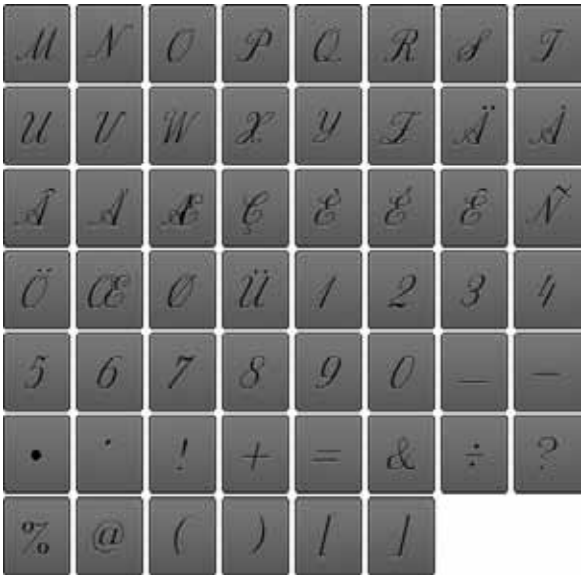
m n o p q r s t
u v w x y z ä à
â å æ ç è é ê ñ
ö œ ø ü

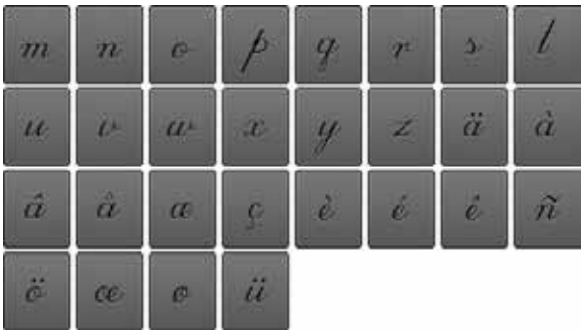
Double-Block

M N O P Q R S T
Ü V W X Y Z Ä À
Â Å Æ Ç È É Ê Ñ
Ö Œ Ø Ü 1 2 3 4
5 6 7 8 9 0 _ -
• ´ ! + = & ÷ ?
% @ ( ) [ ]

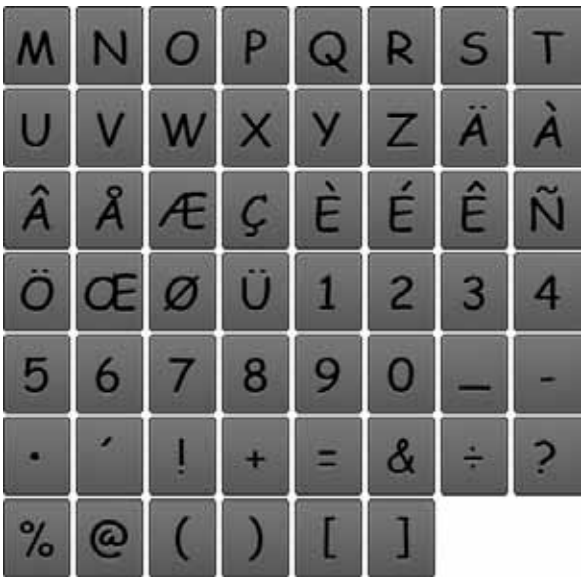


Script





Comic Sans


M N O P Q R S T
U V W X Y Z Ä À
Â Å Æ Ç È É Ê Ñ
Ö Œ Ø Ü 1 2 3 4
5 6 7 8 9 0 _ -
. ´ ! + = & ÷ ?
% @ ( ) [ ]

m n o p q r s t
u v w x y z ä à
â å æ ç è é ê ñ
ö œ ø ü

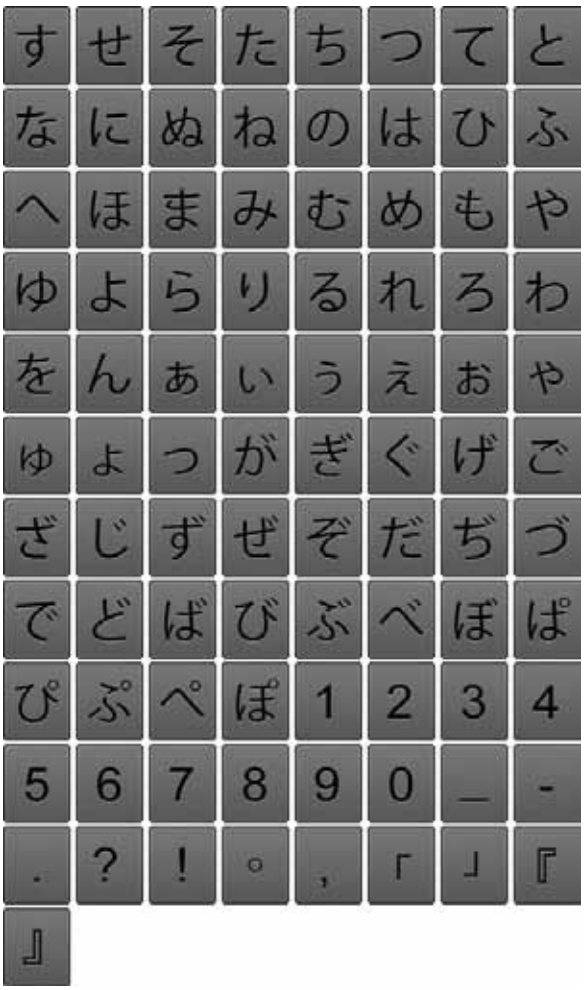
Cyrillic

Л	М	Н	О	П	Р	С	Т
У	Ф	Х	Ц	Ч	Ш	Щ	Ъ
Ы	Ь	Э	Ю	Я	Ә	Ғ	Қ
Ң	Ө	Ұ	Ү	Һ	І	Ђ	Ј
Љ	Њ	Ћ	Џ	Ґ	Є	Ї	Ў
È	Ґ́	S	Ќ	Ѝ	1	2	3
4	5	6	7	8	9	0	_
-	•	´	!	+	=	&	÷
?	%	@	(	)	[	]	

л	м	н	о	п	р	с	т
у	ф	х	ц	ч	ш	щ	ъ
ы	ь	э	ю	я	ә	ғ	қ
ң	ө	ұ	ү	һ	і	ђ	ј
љ	њ	ћ	џ	ґ	є	ї	ў
è	ґ́	s	ќ	ѝ			

Hiragana

あ い う
え お か
き く け
こ さ し


す せ そ た ち つ て と
な に ぬ ね の は ひ ふ
へ ほ ま み む め も や
ゆ よ ら り る れ ろ わ
を ん ぁ ぃ ぅ ぇ ぉ ゃ
ゅ ょ っ が ぎ ぐ げ ご
ざ じ ず ぜ ぞ だ ぢ づ
で ど ば び ぶ べ ぼ ぱ
ぴ ぷ ぺ ぽ 1 2 3 4
5 6 7 8 9 0 _ -
. ? ! 。 , 「 」 『
』

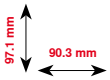
Katakana

Monograms

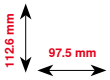
Overview Motifs

Embellishment

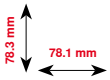
NB018



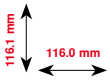
NB728



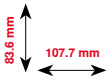
NB403



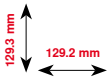
HG079



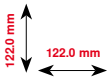
FB457



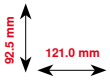
FQ881



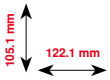
FB336



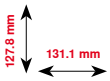
FB377



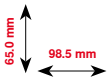
FQ870



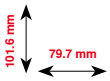
FB385



NB646



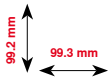
FQ072



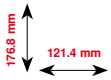
Fringes

Applications

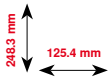
NB101



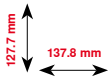
NB373



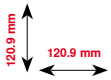
WS649



NB708



FB433



Quilting

BD394

96.8 mm
97.0 mm

BD412

53.2 mm
89.4 mm

BD513

63.4 mm
63.5 mm

BD514

62.9 mm
63.5 mm

BD553

121.1 mm
113.8 mm

BD567

108.2 mm
107.9 mm

BD554

109.9 mm
109.9 mm

BD659

219.1 mm
66.6 mm

BD665

117.8 mm
160.3 mm

HE959

120.6 mm
120.6 mm

Borders and Lace

OC33411

177.1 mm × 24.2 mm

CM471

190.8 mm × 59.1mm

FB403

208.5 mm × 52.2 mm

FQ785

342.0 mm × 92.6 mm

FQ969

161.9 mm × 51.6 mm

FQ408

97.4 mm × 30.0 mm

FQ736

253.1 mm × 7.9mm

BD582

171.1 mm × 48.6 mm

NA912

15.8 mm × 115.1 mm

NA914

18.8 mm × 120.3 mm

NB478

85.5 mm × 121.7 mm

FQ847

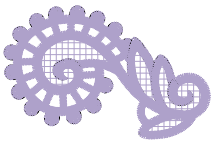
150.1 mm × 142.2 mm

FQ945

95.1 mm × 93.8 mm

FQ041

78.3 mm × 54.0 mm



FB422

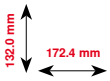
33.8 mm × 52.3 mm

FB423

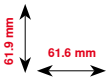
53.6 mm × 132.9 mm

Asia

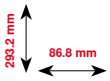
NB124



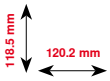
FQ212



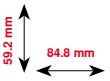
FB492



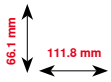
FQ194



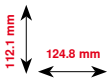
FQ217



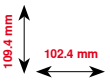
FA427

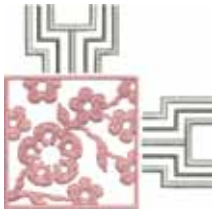


FB276

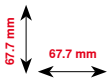


FB283





FB490



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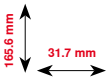

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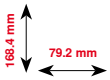

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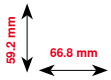


Flowers

FQ061

92.8 mm
75.2 mm

FQ801

112.5 mm
46.0 mm

FQ273

193.4 mm
88.6 mm

FQ055

100.5 mm
84.6 mm

FQ982

218.5 mm
150.1 mm

FB268

87.3 mm
123.7 mm

FQ934

192.4 mm
119.1 mm

CM418

87.4 mm
45.7 mm

FQ972

73.2 mm
111.6 mm

FQ548

159.3 mm
93.8 mm

Seasons

HG319

151.5 mm
88.6 mm

HG301

122.4 mm
123.9 mm

BD603

78.3 mm
80.7mm

HE919

69.2 mm
89.1 mm

HG053

121.8 mm
122.1 mm

NB317

86.9 mm
87.4 mm

NB769

124.7 mm
128.5 mm

NA146

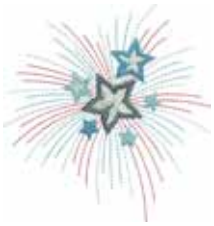
69.6 mm
63.6 mm

NB039

127.0 mm
97.0 mm

FQ749

94.8 mm
77.6 mm



HG460

98.1 mm
91.8 mm

Children

CM226*

63.1mm × 63.3mm

NB193

96.2mm × 113.3mm

CM193*

127.4mm × 106.7mm

CM220*

71.8mm × 71.5mm

WP325

94.0mm × 77.9mm

CM428

106.4mm × 78.2mm

CM404

165.4mm × 47.2mm

CM384

80.7mm × 77.4mm

CM368

140.1mm × 70.2mm

CM147

99.6mm × 55.0mm

CM022

97.1mm × 89.1mm

CM442

47.0mm × 46.5mm

CM362*

113.0mm × 120.6mm

WP201

92.0mm × 76.2mm

CM286

82.4mm × 97.9mm

CK970

81.6mm × 84.4mm

RC765

99.0mm × 100.5mm

*** This design has special effects. For more information please go to www.bernina.com/7series.**

Sports and Hobby

SP980

63.5 mm
63.2 mm

NB036

69.9 mm
35.7 mm

RC244

53.4 mm
88.4 mm

RC675

79.7 mm
101.6 mm

SP266

54.2 mm
75.8 mm

SP989

82.5 mm
101.6 mm

SR067

96.9 mm
87.5 mm

LT870

57.0 mm
97.5 mm

SR589

66.5 mm
95.2mm

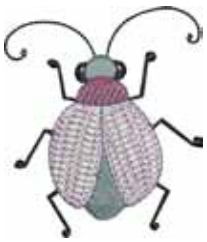
FB158

53.3 mm
39.5 mm

Animals

CM140

97.7 mm
88.1 mm



CM142

66.7 mm
56.5 mm

FB258

184.0 mm
83.2 mm

FQ106

108.9 mm
109.3 mm

FQ617

198.3 mm
118.0 mm

FQ624

144.2 mm
64.5 mm

MT022

125.4 mm
123.2 mm

MT028

93.4 mm
103.3 mm

WM785

103.4 mm
84.6 mm

WP217

78.1 mm
93.9 mm

WP244

172.4 mm
136.8 mm

WS610

111.1 mm
127.3 mm

Flowers outline

NB513

111.7 mm
103.7 mm

FQ274

77.7 mm
63.0 mm

NB668

165.1 mm
114.3 mm

NB002

35.1 mm
59.3 mm

FQ331

63.5 mm
84.6 mm

FQ738

101.4 mm
51.6 mm

FQ157

64.7 mm
63.8 mm

FQ434

162.2 mm
100.0 mm

FB419

56.5 mm
64.3 mm

WS673

170.1 mm
67.7 mm

FQ108

136.1 mm
118.9 mm

FQ161

170.5 mm
128.7 mm

NB442

58.4 mm
55.6 mm

FA971

106.6 mm
115.3 mm

HG390

148.2 mm
79.6 mm

Alphabets

Drifter

Drifter

Childs Play

Childs Play

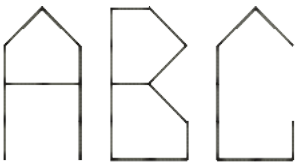
Victoria

Anniversary

Swiss Block

Swiss Block

Quilt Block



Old English

Russian Textbook

Russian Textbook

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